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ABSTRACT

Farm production rose 6 percent in 1985 due to record high yields in corn, soybeans, cotton, and several other crops. While United States consumption increased slightly, exports of farm products fell 23 percent in value and 19 percent in volume. Net cash income increased 12 percent due to increased output, lower cash expenses, and unusually high government outlays under the Commodity Credit Corporation program. However, the effect of declining commodity prices contributed to lower year-end inventory values and lower net farm income. When adjusted for changes in the purchasing power of the dollar, both cash and net farm income were less than in 1973-79. A 12 percent decline in land values contributed to a $95 billion fall in farm asset values. Cashflow and solvency problems remained severe in the sector. A $7 billion decline in farm debt and a $2 billion fall in interest expenses provided some financial relief to the farm sector in 1985. (Fifty data tables are provided.) (Author/YLB)

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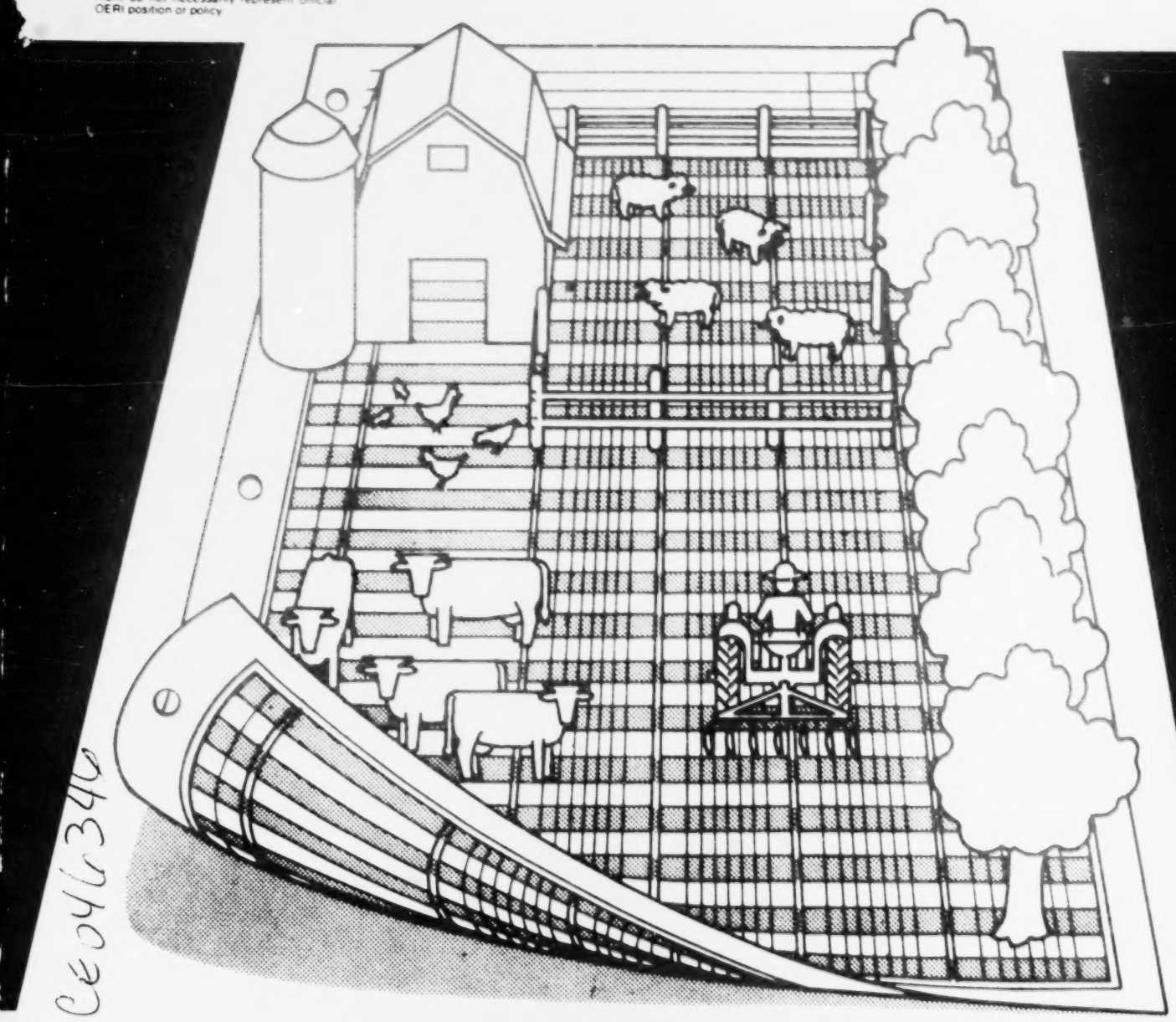
Economic Indicators of the Farm Sector

Farm Sector Review, 1985



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ECONOMIC INDICATORS OF THE FARM SECTOR: FARM SECTOR REVIEW, 1985. National Economics Division, Economic Research Service, U.S. Department of Agriculture. ECIFS 5-4.

ABSTRACT

Farm production rose 6 percent in 1985 due to record high yields in corn, soybeans, cotton, and several other crops. While U.S. consumption increased slightly, exports of farm products fell 23 percent in value and 19 percent in volume. Net cash income increased 12 percent due to increased output, lower cash expenses, and unusually high Government outlays under the Commodity Credit Corporation program. However, the effect of declining commodity prices contributed to lower yearend inventory values and lower net farm income. When adjusted for changes in the purchasing power of the dollar, both cash and net farm income were less than in 1973-79. A 12-percent decline in land values contributed to a $95-billion fall in farm asset values. Cashflow and solvency problems remained severe in the sector. A $7-billion decline in farm debt and a $2-billion fall in interest expenses provided some financial relief to the farm sector in 1985.

Keywords: Farm income, balance sheet, costs of production, capital flows, output, productivity.

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PREFACE

This is one of five reports in the Economic Indicators of the Farm Sector series. Other reports are Costs of Production, National Financial Summary, State Financial Summary, and Production and Efficiency Statistics.

This publication was prepared by the staff of the Income Research and Forecast Section, Economic Indicators Branch, National Economics Division, Economic Research Service.

Principal contributors to this report were:

Coordinator--James Johnson	(202) 786-1800
Economics editors--Greg Hanson	786-1807
Diane Bertelsen	786-1807
Managing editor--Jim Carlin	786-1512
Farm income, forecasts, and income distribution, by type--	
Gary Lucier	786-1807
Richard Kodl	786-1807
Capital flows and formation--Craig Jagger	786-1804
Balance sheet--Ken Erickson	786-1798
Jim Ryan	786-1798
Sales classification, Off-farm income--Mary Ahearn	786-1807
National input and output--William Edmondson	786-1281
Gerald Schluter	786-1281
Production expenses--Gary Lucier, Linda Farmer	786-1807
Food consumption--Karen Bunch	786-1870
Costs of production--Bob McElroy (crops)	786-1801
Russell Bowe (livestock)	786-1821
Carolyn Betts (dairy)	786-1823
Mary Ahearn (by size)	786-1807
Exports, Financial stress--Diane Bertelsen	786-1808
Debt loss and stablization--Greg Hanson	786-1807
Government program participation --Gary Lucier	786-1807
Sara Short	786-1798
Productivity--Charles Cobb	786-1801
Secretarial support--Margie Craig, Shelia Shaw	
Computer graphics--Agnes Chesley	

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Summary

Farm sector performance exhibited both strength and weakness in 1985. Strong production, high Government supports, and declining expenses helped net cash income climb 12 percent to a record $44 billion. However, net farm income, a production-based measure, declined 7 percent from 1984 levels to $30.5 billion. More than 85 percent of farm operator households received income from sources other than their farm in 1985. Off-farm incomes increased 8 percent to $40.8 billion.

Record yields in corn, sorghum, oats, rice, soybeans, cotton, and tobacco, along with productivity gains in dairy and poultry, contributed to a 6-percent increase in farm output. Weakening commodity prices, especially for crop enterprises, tended to offset productivity gains. While direct Government payments declined from $8.4 billion to $7.7 billion, net Commodity Credit Corporation (CCC) outlays increased more than $12 billion. Cash production expenses declined nearly $7 billion due to both reduced input use and input prices.

A $95-billion decline in farm and household assets overshadowed record declines in farm debt outstanding and interest expenses. Farm equity fell $97 billion. Many farmers experienced cashflow and solvency problems. The aggregate debt-to-asset ratio increased to nearly 25 percent and the number of commercial-sized farmers with debt exceeding assets also increased.

CHANGES IN EARNINGS

- While 1985 crop receipts rose 5 percent, a similar decline in livestock sales left total cash receipts very near the 1984 level. Feed grains, hay, and cotton provided most of the upward push in crop receipts while lower red meat sales accounted for much of the dip in livestock receipts.

- Declining production expenses helped stabilize 1985 farm income. Total expenses fell roughly 4 percent to $136.1 billion. This downturn was largely led by falling interest charges (down 11 percent) and expenditures for manufactured and farm-origin inputs (both down 3 percent).

- Sector productivity increased 8 percent while input use fell 1 percent. Growers posted record yields for corn, soybeans, cotton, sorghum, oats, rice, and tobacco.

- The prices received index fell 10 percent. The 14-percent decline in crop prices was double the fall in livestock prices. Oil crop prices were off 23 percent, while tobacco was the only crop to register a price increase.

- Exports of agricultural commodities declined 23 percent in value and 19 percent in volume from calendar years 1984 to 1985. Wheat and soybean oil sales fell markedly, 41 and 30 percent, respectively, in volume and about 43 percent each in value. Foreign sales of animal products remained relatively stable with a 2-percent decline in value and a 4-percent increase in volume.

DIVERGENCE OF EARNINGS

- Sales of agricultural commodities for the smallest 20 percent of farms averaged about $1,000. Average sales for the largest 1 percent of farms were about $1.7 million in 1985.

- About 50 percent of the farms had sales of less than $10,000. The smallest farms accounted for less than 3 percent of the sector's total sales. Fourteen percent of farms had sales over $100,000 and accounted for 75 percent of all agricultural commodity sales in 1985.

- Production was the most highly concentrated for vegetables, greenhouse and nursery products, fruits and nuts, poultry and eggs, and cattle. Over half of these commodities' sales were from the largest farms, which were 1.2 percent of all farms. Tobacco was the only commodity with major sales (58 percent) from farms with less than $100,000 in total sales.

- Unit cash costs of production varied by farm size. Small farms had generally higher unit cash costs. Midsized farms ($100,000 to $500,000 in total sales) had the lowest unit cash costs in the production of several commodities: corn/soybeans, cotton, cattle, and dairy products. Large farms ($500,000 or more in sales) had the lowest unit cash costs of fruit and nut, and hog production.

FINANCIAL PROBLEMS

- Farm and farm household assets declined $95 billion to $861 billion at the end of 1985 due to continuing declines in real estate values (down 12.4 percent in 1985).

- While sector debt declined over $7 billion, operator debt viewed to be at risk to lenders increased by $1-$2 billion as cashflow problems continued and the equity base declined.

- The proportion of commercial-sized farms with debt-to-asset ratios greater than 0.7 increased from less than 12 percent to 14 percent between the end of 1984 and 1985. Commercial-sized farms with negative cash flow after paying interest on debt decreased from 36.3 percent in 1984 to 29 percent in 1985.

- The number of commercial-sized farms experiencing financial stress (with debt ratios of at least 0.7 and negative cash flow after interest) declined from approximately 39,500 (6.1 percent) at the end of 1984 to 36,000 (5.7 percent) at the end of 1985.

- Proportions of stressed farms increased from 4.1 percent to 6.4 percent of beef producers and from 4.6 percent to 7.2 percent of small grain producers. Financial stress among hog and cotton-rice producers decreased during 1985, but remained above the national average at 7.8 percent and 7 percent, respectively.

Economic Indicators of the Farm Sector

Farm Sector Review, 1985

OVERVIEW OF THE FARM SECTOR

The food and fiber sector, which includes farming, food processing, manufacturing, transportation, and retailing, employed 21.4 million people in 1985 (table 1). This level of employment has held steady in the 1980's, while the farm sector share of 11 percent has declined slightly. The 10-percent farm share of food and fiber sector value-added (sales minus purchased inputs) was down from 12 percent in the early 1980's. The nonfarm components of the food and fiber sector experienced more growth in economic production than did the farming component.

Table 1--The farm share of total food and fiber sector employment and value-added, selected years, 1975-85

Item	1975	1980	1981	1982	1983	1984	1985
				Million persons			
Food and fiber sector employment	20.1	21.6	21.4	21.4	21.1	21.3	21.4
				Percent			
Farm sector share	14.0	12.0	12.0	11.0	12.0	13.0	11.0
				Million dollars			
Food and fiber sector value-added	325.7	499.9	562.3	611.8	603.1	660.2	700.8
				Percent			
Farm sector share	13.0	11.0	12.0	12.0	8.0	10.0	10.0

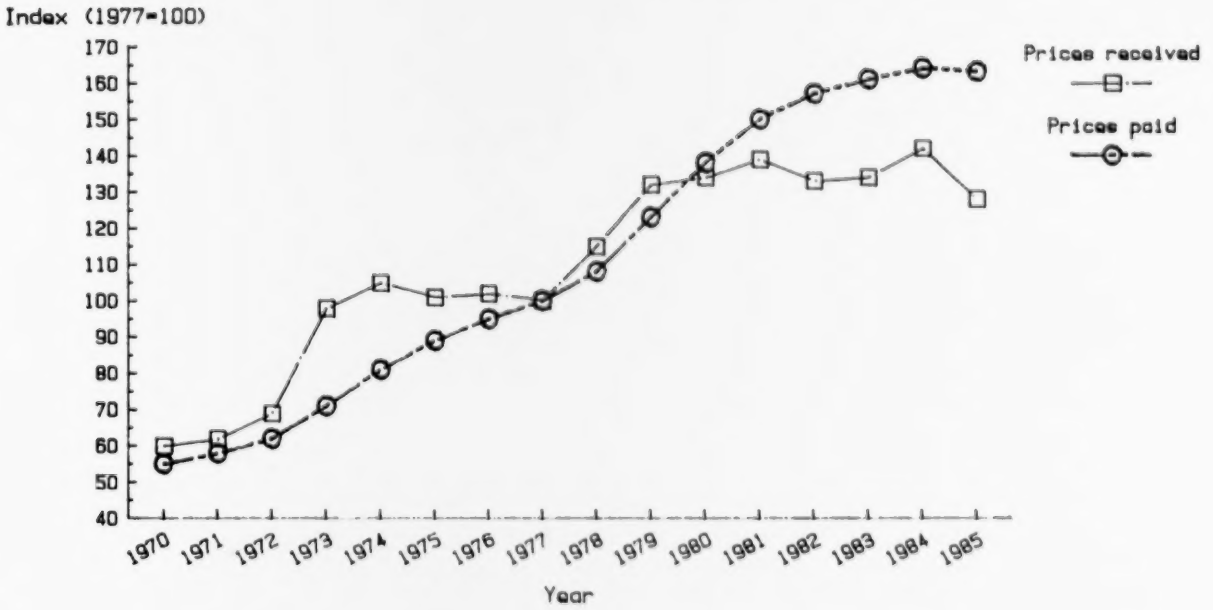
Production and Prices Received

Total farm production in 1985 was up 6 percent from a year earlier. This was the second consecutive year of expanded output after the major 1983 production drop associated with drought and the Payment-in-Kind (PIK) program. Crop production grew 5 percent while livestock output increased about 3 percent. An 8-percent rise in total farm productivity was responsible for much of this growth. By implication, acreage contributed proportionally less to production growth. A 1-percent drop of farm input use suggests that improvements in technology and management and generally favorable weather achieved this record productivity.

Feed grains contributed the most to growth in crop output, experiencing a 15-percent rise. Cotton and oil crops also added to output expansion. Food grain production declined 7 percent, the largest decline among crops, followed by vegetables and fruits and nuts, which declined 5 percent. Output of dairy and poultry products increased 6 and 4 percent, respectively, while production of meat animals remained at the 1984 level.

The index of prices received for all farm products fell 10 percent, while the prices paid index declined 2 percent during 1985 (fig. 1). The index of prices paid for production items, interest, taxes, and wage rates has exceeded prices received since 1980. Oil-crop prices were off 23 percent in 1985 while cotton, feed grains, and hay also faced substantial price declines. The continued fall in agricultural exports and the second straight year of large gains in farm output have aggravated these negative price movements. Tobacco was the only major crop which showed an improvement in prices received. This

Figure 1--Indices of prices received and paid by farmers, 1970-85



marginal price gain was more than offset by an 11-percent fall in tobacco production. Poultry and eggs both experienced price declines of about 12 percent, approximately double those affecting dairy and meat animal producers.

Together these changes in quantities produced and prices received led to a $3.5-billion upturn in crop cash receipts, almost equal to the decline in livestock sales. Total farm sector cash receipts, however, fell $100 million to $142.1 billion.

Declines in farm prices in the 1980's have changed the economics of agriculture (table 2). Although the average of annual prices for several major crop and livestock commodities in 1983-86 about equaled average price levels in 1973-76, the purchasing power of the dollar has eroded. Deflated 1983-86 prices tended to be less than 60 percent of 1973-76 prices (with the exception of cattle). For example, $6 received for soybeans in 1983-86 would purchase only $5.53 worth of the goods and services, while the $6.01 received in 1973-76 had the purchasing power of $10.72.

Estimated 1986 prices for corn, wheat, soybeans, and cotton were lower than during 1973-76 and 1983-86. When deflated to adjust for purchasing power, prices of these crops were 32-44 percent of the 1973-76 levels. Each bushel of wheat sold at 1986 estimated prices had less than one-third the purchasing power it had in the mid-1970's.

Table 2--Current and constant commodity prices, selected years, 1973-86

Prices/years	Corn (bu.)	Wheat (bu.)	Soybeans (bu.)	Cotton (lb.)	Cattle (lb.)	Hogs (lb.)
			Dollars per unit			
Current:						
Average price, 1973-76	2.57	3.55	6.01	0.51	0.36	0.41
Average price, 1983-86	2.56	3.11	6.00	.56	.55	.46
Estimated price, 1986 1/	1.93	2.37	4.95	.45	.54	.45
Constant: 2/						
Average price, 1973-76	4.61	6.47	10.72	.89	.65	.72
Average price, 1983-86	2.36	2.86	5.53	.52	.51	.42
Estimated price, 1986	1.70	2.09	4.37	.40	.48	.39
			Ratio			
Ratio of average prices:						
1983-1986/1973-76--						
Current	1.00	.88	1.00	1.10	1.53	1.12
Constant	.51	.44	.52	.58	.78	.58
1986/1973-76--						
Current	.75	.67	.82	.88	1.50	1.10
Constant	.37	.32	.41	.44	.73	.55

1/ 1986 prices are estimates, not USDA official projections.
2/ Deflated to adjust purchasing power to 1982 price levels, with the GNP implicit price index.

Export Demand

Exports of agricultural commodities declined 23 percent in value and 19 percent in volume between calendar years 1984 and 1985 (table 3). Sales of wheat and soybean oil both decreased more than 40 percent in value. Wheat accounted for most of both the value and volume declines in exports shown in the grains and feed category. Several wheat importers responded to the lower valued Canadian dollar and attractive credit terms offered by France and Argentina.

The relative costs of commodities available for export discouraged purchases from the United States. Exchange rates for U.S. dollars expressed in currency units of Japan, the Netherlands, and England declined during 1985. The U.S. dollar gained in average value compared with the Canadian dollar. The real, trade-weighted dollar index of exchange rates for all agricultural trade fell 14 percentage points from May to December of 1985. However, for most of the year the high value of the U.S. dollar discouraged purchases from many traditional trading partners.

Farm Income

Net farm income, a measure of the net value of agricultural production in a given calendar year, totaled $30.5 billion in 1985, down 7 percent from 1984 (table 4). In constant 1982 dollars (deflated by the Gross National Product (GNP) implicit price deflator), net farm income fell 10 percent to $27.3 billion. This decline was prompted by a 10-percent fall in prices received for commodities which outweighed a 5-percent increase in total farm output. The $7.7-billion change in inventory values (from a $6.3-billion accumulation in 1984 to a $1.1-billion decline) exceeded the $5.6-billion decline in total production expenses, leaving net farm income $2.2 billion below that of 1984. Rising inventories of corn, potatoes, and soybeans led to a total accumulation

Table 3--U.S. agricultural exports, selected years, 1981-85 1/

Commodity	Unit	1981	1984	1985
Grains and feed	Billion dollars	19.4	17.2	11.9
	Million tons	113.8	110.9	86.9
Oilseeds and products	Billion dollars	9.6	8.4	5.8
	Million tons	32.2	27.4	23.7
Animals and products	Billion dollars	4.2	4.2	4.2
	Million tons	2.6	2.4	2.5
All commodities	Billion dollars	43.3	37.8	29.0
	Million tons	162.3	146.8	118.8

1/ Calendar year basis.

Source: U.S. Department of Agriculture, Economic Research Service, Foreign Agricultural Trade of the United States, January/February 1986.

of $835 million in crop inventories. However, the fourth consecutive decline in the cattle herd left total livestock inventories down nearly $2 billion.

While net farm income fell, a combination of stronger crop receipts, increased farm-related cash income, and falling cash expenses led to a 12-percent surge in net cash income. The $44-billion net cash income level, when expressed in constant dollars to adjust for declines in purchasing power, remained well below 1973-79 average levels. However, in constant dollars, net cash income showed the greatest increase since 1978. An unusually large rise in farm-related income (caused by increased custom feeding income) offset a 9-percent decline in direct payments, leaving gross cash income 1 percent above a year earlier. Direct payments (cash plus PIK), although continuing at a high level, fell as disbursements of PIK entitlements trailed off to $90 million, compared with $4.5 billion in 1984. However, direct cash payments more than doubled to a record $7.6 billion. Texas led the Nation in direct payments, as it has since 1978, receiving 11 percent of the total. Texas cotton producers received the greatest share of program disbursals within the State.

Cash receipts from marketings totaled $142.1 billion, almost equal to the 1984 figure. California received the largest proportion, 10 percent of all cash receipts ($14 billion). U.S. livestock receipts declined 5 percent as prices received fell 7 percent, outpacing a gain in output caused by stronger poultry and dairy production. Poultry and egg receipts fell in 1985 after the unusually strong 1984 gain of 22 percent caused partly by the price-enhancing influence of the Avian influenza scare. Despite a 6-percent cut in prices

Table 4--Farm income and expenses, selected years, 1980-85

Item	1980	1982	1984	1985
		Billion dollars		
Gross cash income 1/	143.3	150.6	154.9	156.2
Gross farm income 2/	149.3	163.4	174.4	166.6
Cash expenses	109.1	113.8	115.6	112.1
Total expenses 3/	133.1	140.7	141.7	136.1
Net cash income 4/	34.2	36.8	39.3	44.0
Deflated 5/	39.9	36.8	36.4	39.5
Net farm income 6/	16.1	22.7	32.7	30.5
Deflated 5/	18.8	22.7	30.3	27.3

1/ Gross cash income equals crop and livestock receipts plus farm-related income plus direct Government payments. 2/ Gross farm income equals gross cash income plus nonmoney income and value of inventory change. 3/ Total expenses include perquisites to hired labor and depreciation. 4/ Net cash income equals gross cash income minus cash expenses. 5/ Deflated with GNP-implicit price index with base year 1982. 6/ Net farm income equals gross farm income minus total expenses.

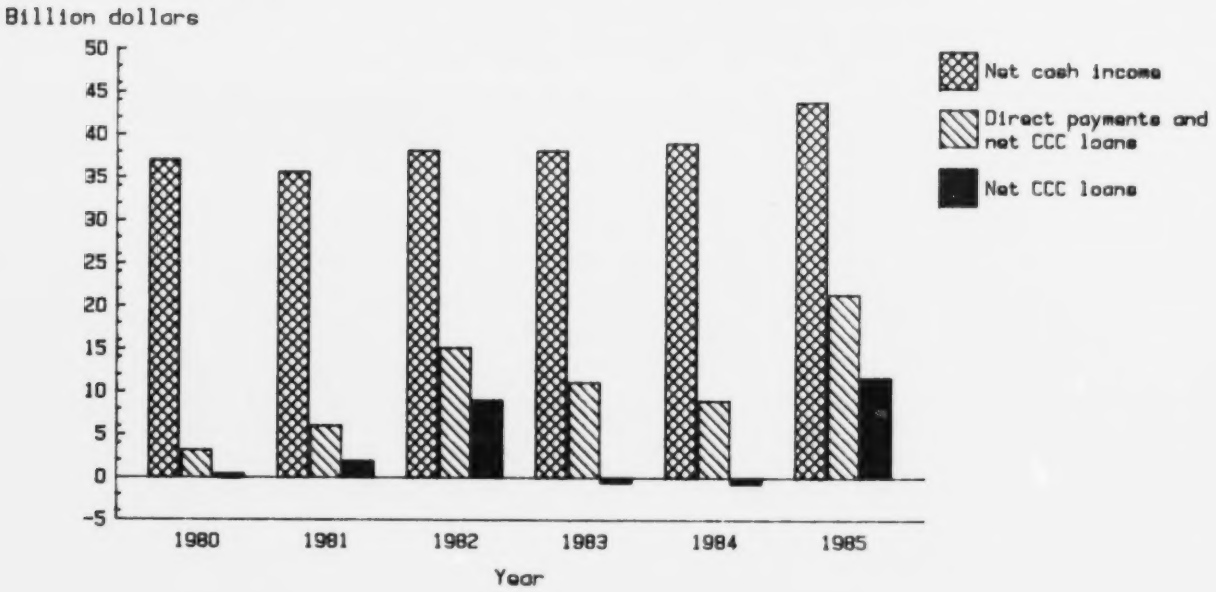
received, milk receipts increased slightly due to a 4-percent rise in output per cow and a 2-percent gain in cow numbers. Texas led the Nation in livestock receipts with 8 percent of the total, followed by Iowa with 7 percent.

Crop cash receipts increased roughly 5 percent in 1985 despite a 14-percent fall in prices received. California dominated with more than 13 percent of the total, followed by Illinois with 8 percent. Low prices relative to loan rates and strong production of program commodities led to a record $11.8 billion in net Commodity Credit Corporation (CCC) loans last year (fig. 2). The large volume of loans, especially in the fourth quarter, together with record high production led to a 36-percent increase in feed crop receipts. Three States accounted for 36 percent of feed crop receipts in 1985: Illinois ($3.5 billion), Iowa ($2.7 billion), and Indiana ($1.6 billion). These three major corn- and soybean-producing States accounted for 32 percent of total net CCC loans.

While cash receipts leveled off, cash production expenses fell 3 percent, the largest decline since 1953 and the first decline since the 1983 PIK year. The most significant decrease occurred in interest expenses, which fell 12 percent, the third consecutive annual decline and the largest decrease since 1935. This was caused by reductions in average debt outstanding (-3 percent) and average interest rates on outstanding debt (-9 percent).

Depreciation, which accounted for nearly 16 percent of total production expenses in 1985, has been lower each year since the 1982 peak.

Figure 2--Net cash income and Government payments, 1980-85



Depreciation fell 8 percent in 1985 after much smaller declines the previous 2 years, mainly because of the combination of continued annual declines in capital expenditures and little movement in prices paid for farm machinery. Capital expenditures have declined each year since the 1979 peak of $21.1 billion. Capital consumption has exceeded capital investment every year since 1980 with the 1985 "disinvestment" of $10.2 billion being the largest during this period.

Receipts by Commodity

Receipts from the sales of major crops rank among the strongest data components in USDA net income statistics. Gross receipts encompass both commodity price and production level information. When changes in gross receipts are viewed with changes in cash expense and direct Government payments, wide diversity in economic performance within the sector becomes evident.

Net cash income had risen $2.2 billion in 1984 (table 5). Sales of fruits, vegetables, rice, peanuts, poultry, and cattle increased $6.7 billion. These commodities tend to be concentrated among large, specialized farms or specific regions. Without the strong performance of these specialized commodities, net cash income would have declined by more than $4 billion. Sales of wheat, corn, cotton, and dairy products did in fact decline in 1984, while higher cash expenses also decreased income levels.

Record production and intense use of CCC loans raised corn and sorghum receipts in 1985. However, receipts of most other commodities declined $7 billion, outpacing the $3.5-billion drop in cash expense. Many major crop and livestock enterprises had a difficult financial year, despite the $4.8-billion increase in aggregate net cash income.

Table 5--Changes in selected cash receipts, 1983-85

Item	1983/84	1984/85	Item	1983/84	1984/85
	Billion dollars			Billion dollars	
Crop receipts:			Livestock receipts:		
Wheat	0.3	0.6	Cattle	2.0	-2.0
Rice	-.1	-.1	Hogs	.1	.8
Corn	-.2	5.3	Poultry and eggs	2.0	-1.0
Sorghum	.3	.5	Dairy products	-.9	.2
Oil crops	.4	-1.7			
Cotton	-.4	.5	Total increases	7.0	6.9
Tobacco	.0	-.1	Total decreases	-1.9	-6.9
Fruit and nuts	.7	.0			
Vegetables	.7	-.6	Total gross receipts 1/	5.7	-.1
Greenhouse and nursery	.6	.4	Net cash income 2/	2.2	4.8

1/ Changes in total gross receipts include changes of $100-$200 million for several commodities not shown. 2/ Net cash income reflects changes in cash expenses in 1983/84 and 1984/85 of $2.6 billion and -$3.5 billion, respectively, and decreased Government payments in both periods.

Income Distribution by Farm Type

Disaggregating farm income by enterprise type utilizing distributors from the 1982 Census of Agriculture reveals a wide disparity of financial conditions within the sector. Average per farm net cash income ranged from $41,500 among cotton farms to $9,800 among cattle, hog, and sheep farms in 1985. A similar range existed in disaggregated net farm income figures.

Farms that receive at least half their open market sales from particular commodities or commodity groups are classified as that type. These specialized enterprise types may also produce other crop and livestock products. Thus, a farm with 60 percent of its total sales from dairy and 40 percent from other products could lose money in a year with good dairy output and favorable dairy prices if costs and returns from other products were poor.

Meat animals (cattle, hog, and sheep farms), which accounted for 40 percent of all farms in 1984 and 1985, had average net cash income and total net farm income considerably below the sectorwide averages. Cotton and vegetable enterprises, which were 2 percent of crop farms, received on average the highest income levels among crop farms. Poultry farms, representing 3 percent of all livestock farms, earned the top average income among livestock enterprises while dairy farms, numbering roughly 14 percent of all livestock and 7 percent of total farms, also earned per farm income well above the sector average.

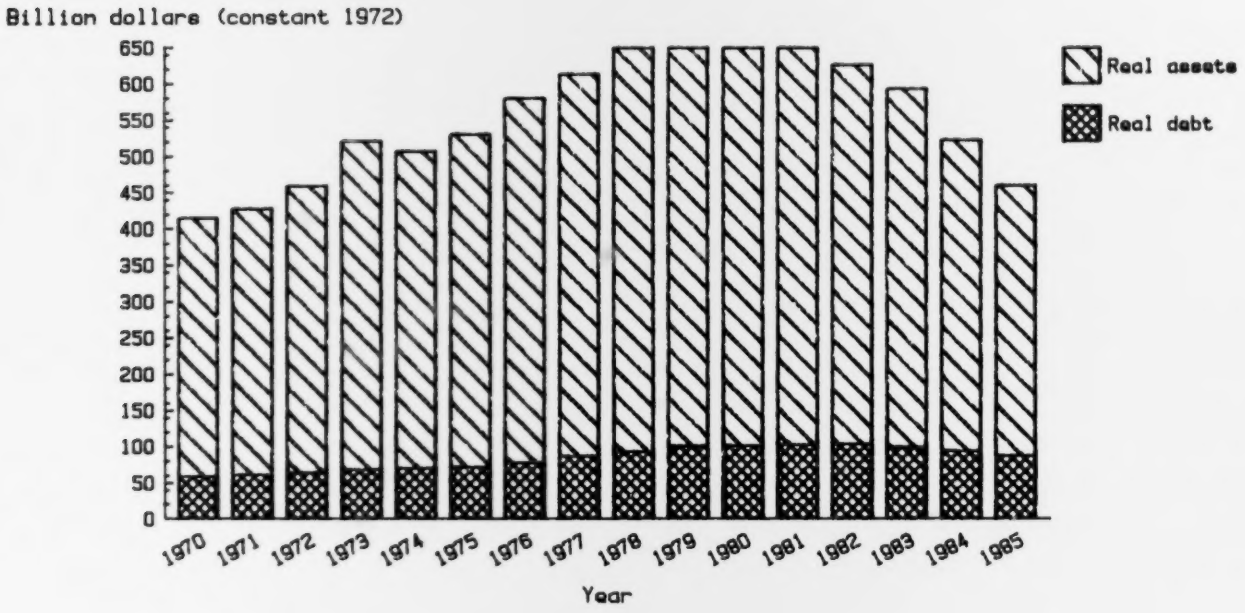
Balance Sheet

Although nominal income within the farm sector was strong in 1985, the overall financial picture was dimmed by the fifth consecutive decline in nominal farm equity. Equity within the sector fell by 12 percent as the value of farm assets dropped nearly 10 percent, outweighing a 3-percent decline in outstanding liabilities. In deflated (1982) dollars, equity declined 15 percent, making 1985 the fifth consecutive annual decrease (fig. 3).

Most of the decline in equity the past few years has been due to falling land values. The average nominal value of land and buildings (of which 87 percent was land) fell 12 percent during 1985 to approximately $600 per acre, an overall $80-billion fall in farm real estate assets to the lowest nominal asset level since 1977. However, this was not the only type of farm asset to decline in value. All other major asset categories fell in nominal value except crop inventories. The value of crop inventories rose 10 percent as farmers chose to store much of the large 1985 crop or place it under CCC loan. For example, feed grains reached record levels of production and unprecedented CCC placements.

The value of livestock and poultry on farms declined 7 percent to $45.9 billion, the lowest value since 1977. This reflects the continued decline in the cattle herd and fewer hogs and pigs on hand at the close of the year. The cattle inventory declined nearly 4 percent to 105.5 million head, the lowest since 1962, while hog numbers fell 3 percent to 52.3 million, the lowest since 1975. Average values per head also fell with cattle and calves down 3 percent to $391 per head and hogs and pigs down 7 percent to $69.60 per head. Cattle and calves accounted for about 90 percent of total livestock inventory value while hogs and pigs were about 8 percent. The remaining 2 percent was split between poultry, sheep, and lambs.

Figure 3--Real value of farm sector assets and debt, 1970-85



The value of machinery and motor vehicles on farms declined for the third consecutive year to $92.2 billion. The value of miscellaneous farm machinery, such as combines, balers, and swathers, fell 9 percent, as investment in newer, more expensive equipment continued to lag.

Total farm sector liabilities declined for the third consecutive year despite a doubling of CCC loans. Outstanding real estate debt fell more than 5 percent ($4.1 billion) because of debt repayment and loan losses. The Federal land bank held 42 percent of all real estate-secured farm loans at the end of 1985 (the same as it held in 1940). Life insurance companies also lost market share as their real estate loans outstanding fell $600 million. Commercial banks and the Farmers Home Administration (FmHA) each gained market shares and real estate loan volume.

Nonreal estate debt outstanding dropped 1 percent in 1985 even though CCC price support loans increased $8.2 billion. Partly because of this high volume of CCC loans, reduced capital spending, reduced planted acreage, and loan losses, every other source of nonreal estate farm loans except FmHA lost market share and loan volume. Commercial banks dropped $3.9 billion in loans, while the Production Credit Associations (PCA) realized a $3.8-billion decline. Some of those loans were likely picked up by FmHA, whose loans outstanding increased to 16 percent of total nonreal estate debt. Since 1940, credit secured from individuals and others has dropped from 42 percent to 16 percent.

Operator Financial Stress

An analysis of financial stress in the farm sector used indicators of indebtedness and cash flow derived from USDA's Farm Costs and Returns Surveys of 1984 and 1985. We considered commercial-sized farms (with production or sales of at least $40,000) with debt-to-asset ratios greater than 0.7 and negative cash flows after interest to be highly financially stressed. Results indicated that 5.7 percent of commercial farms (almost 36,000 operations) could be considered highly stressed at the end of 1985, a decrease from about 6.1 percent in 1984 (table 6). After subtracting interest, imputed principal payments, and family living allowance and adding off-farm income to net cash flow from the farm business, 8.8 percent had negative cash flow and were highly leveraged at the end of 1984. This percentage increased to over 9 percent during 1985.

Three measures of cash flow--net cash income before interest, after interest, and after interest, principal, and adjustments for family living and off-farm income--all improved during 1985. However, more commercial farms had debts exceeding their asset values at the end of 1985. Figure 4 shows estimated distributions of farms unable to pay interest among debt ratio categories. The number of technically insolvent commercial farms with insufficient cash flow increased during 1985.

Most of the financially stressed operations derived the largest portion of gross value of production from corn and soybeans (fig. 5). Corn-soybean farms were also the most numerous type, followed by milk and beef. The number of stressed farms decreased markedly in 1985 for those classified as corn-bean, cotton-rice, and specialty crop (peanuts, tobacco, potatoes, sunflowers, and sugar beets). Numbers of beef and small grain operations that could be

Table 6--Financial distress among commercial farms 1984-85 1/

Negative cash flow	Ratio of total farm debt to assets: Less than 0.4	0.4 to 0.7	0.7 to 1	More than 1	Total
	Percent of commercial farms				
Before interest:					
1984	16.9	4.4	2.3	1.6	25.2
1985	13.0	3.1	1.4	1.8	19.3
After interest:					
1984	21.4	8.8	3.7	2.4	36.3
1985	17.5	5.8	2.5	3.2	29.0
After interest, principal, and household adjustment:					
1984	31.4	13.1	5.4	3.4	53.3
1985	24.2	10.1	4.6	4.6	43.5

1/ Commercial farms had at least $40,000 gross value of production.

Figure 4--Commercial farms with negative cash flow after interest

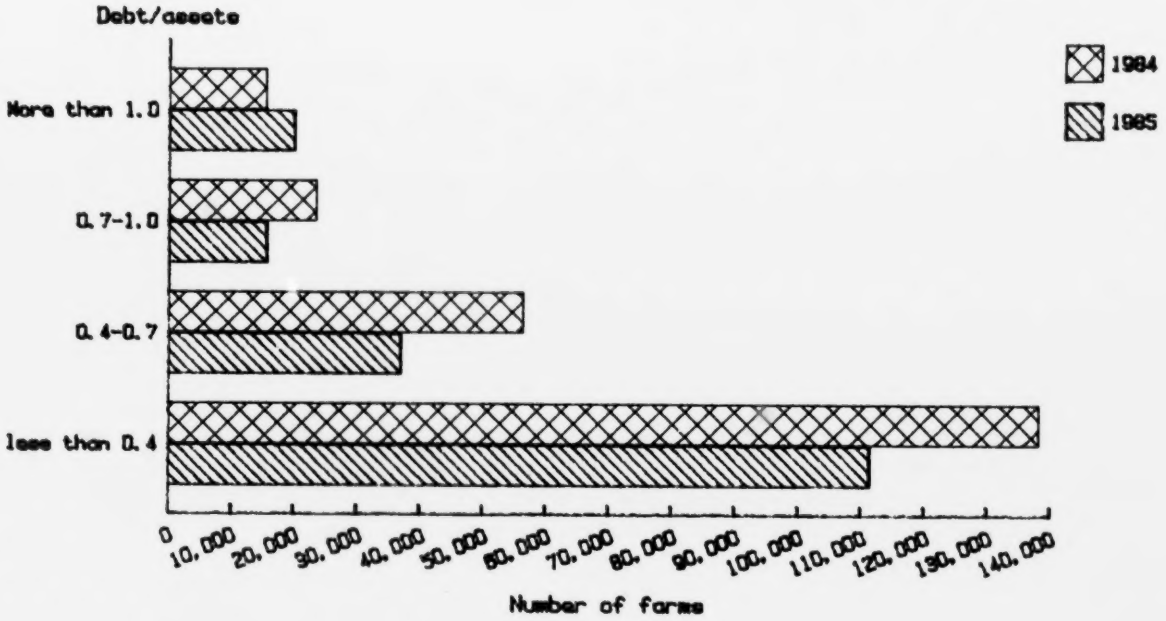
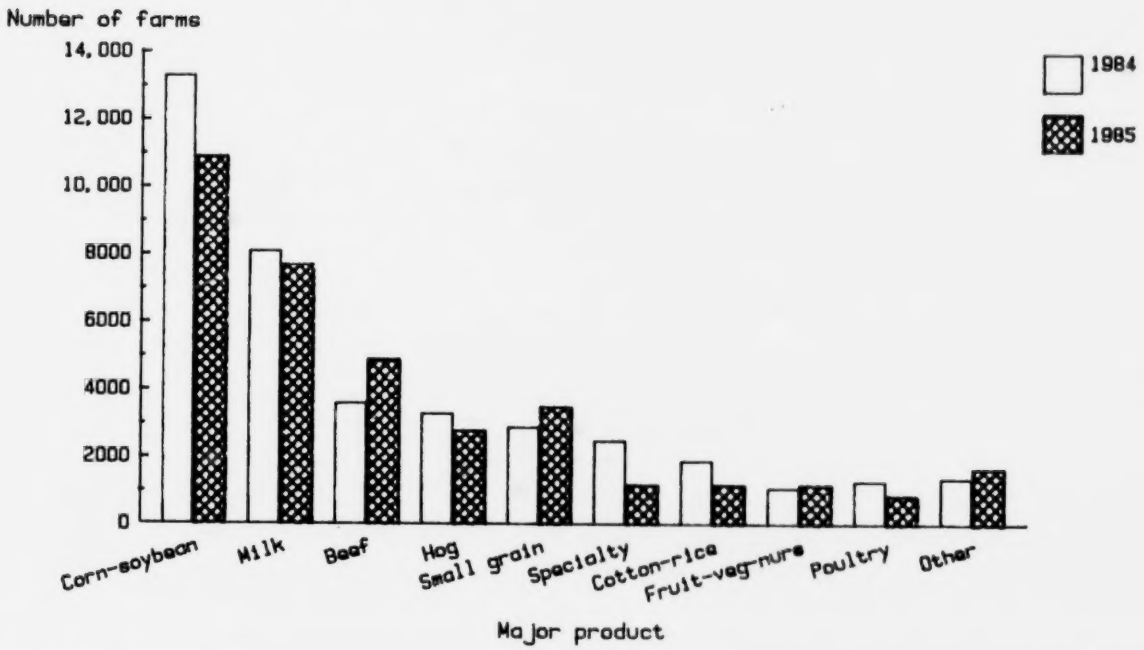


Figure 5--Highly stressed commercial farms, by major product



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considered highly stressed increased from 1984. These shifts could have resulted from changes in total farms of each type as well as financial conditions.

Financial stress was not evenly distributed among farm types in 1985. Almost 8 percent of farms mainly producing hogs had negative cash flow after interest and debts exceeding 70 percent of their assets. Producers of cotton-rice and small grains also had higher than average (about 7 percent) proportions of stressed operations. Less than 4 percent of farmers who produced mainly poultry or fruit, vegetables, and nursery products were highly stressed in 1985.

The incidence of financial stress was greater than the national average in the Southern Plains region (almost 11 percent), the Delta States (8 percent), and the Lake States (about 7 percent). Less than 4 percent of farms that produced commodities valued at $250,000 or more were highly stressed in 1985 compared with 6 percent of those that produced from $40,000 to $250,000 worth of commodities.

Projections for 1986 and 1987

Government outlays in support of the farm sector and declining production expenses continued to be two of the most important factors affecting the 1986 farm income picture and will again be important in 1987. While crop receipts are expected to fall, part of this decline will be offset by a considerable rise in direct Government payments, which will increase as lower loan rates in 1985 farm legislation and strong program participation rates exert upward pressure on deficiency payments. Assuming no changes are made to the current law, deficiency payments will remain an important contributor to gross income throughout the remainder of the decade. Reduced production expense will likely compensate for the remaining deficit in gross cash income resulting from lower crop receipts. Cash expenses fell $5 billion in 1985 and probably declined another $6 billion in 1986 because of the combination of lower input prices and reduced input use, bringing current-dollar cash expenses back to the 1980 level. Cash grain and cattle, hog, and sheep farms, which experienced the largest cash expenditure declines in 1985, will likely see further large cash expenditure drops relative to other farm types. Cash expenses will likely decline again in 1987 as prices paid by farmers remain near year-earlier levels and input use continues to fall along with planted acres.

The offsetting nature of these factors should keep 1986 net cash income near the 1985 level of $44 billion while 1987 income rises to about $48 billion. However, in deflated terms, net cash income could fall slightly in 1986 before rising again in 1987. We expect crop farms to account for 55 to 60 percent of the total, down from 62 percent in 1985. Much of the strength in crop farm net cash income will come from Government payments and CCC price support loans.

Reduced production and prices in 1986 will likely leave net farm income, a rough measure of the net value of agricultural production, around the $28-billion mark. In deflated terms, net farm income will be $2 billion below 1985. Because of the smaller change in production (inventories may be drawn down $4 billion) and the rise in direct payments, the decline in net farm income will be small compared with the drought- and PIK-inspired decrease of 1983. Overall, the contribution of the farm sector to GNP will be smaller in 1986 and 1987 because of reduced crop output. Similar price and output movements in 1987 will likely put downward pressure on gross farm income.

However, a significant rise in direct payments together with lower expenses could leave 1987 net farm income above the 1986 level.

Cash Receipts Projections

Total cash receipts from open market sales and net CCC loans in 1986 and 1987 are expected to fall sharply from the 1985 level. Crop cash receipts may decline $12 billion to $61 billion in 1986. Total crop output may decline 7 percent and average prices received by farmers for crops may fall 12 percent. We expect open market sales of crops to decline significantly for the second consecutive year as prices fall and farmers again place large quantities of grain and cotton under CCC loan. Despite sharply reduced loan rates and lower crop production, net CCC loans may total $10 billion compared with $11.8 billion for 1985. The net CCC loan total includes $3.4 billion ($9.6 billion on a seasonally adjusted annual rate basis) in loans made during the first quarter of 1986 when loan rates were still at 1985 levels.

We expect livestock cash receipts ($69.4 billion in 1985) to total about $71 billion. Livestock marketing volume likely will remain near that of 1985 as record or near-record production of milk and poultry products offsets declining meat animal output. Prices received for livestock and products may rise 2 percent as stronger hog and poultry prices outweigh reduced milk prices. Cattle and hog prices should strengthen in early 1987 before tapering off later in the year. Cash receipts for poultry and eggs are expected to rise more than 10 percent in 1986.

Calendar year (CY) 1986 Government outlays to the farm sector will likely have reached unprecedented levels as direct payments total a record $12 billion and net CCC loans add another $10 billion. In 1985, outlays were also very large, totaling nearly $22 billion for the three major components which directly affect gross farm income (direct payments including deficiency and diversion programs, net CCC loans, and purchases of dairy products under the dairy price support program).

Government outlays in support of farm sector income have reached unprecedented levels for four major reasons:

(1) Record crop production, burdensome stocks, and reduced demand, especially for exports, have forced market prices down to loan rate levels making participation in farm programs a virtual necessity for financial survival,

(2) Provisions in the 1985 Food Security Act for lowering loan rates without changing target prices have resulted in record-high deficiency payments,

(3) About $4 billion in 1986 crop deficiency payments were advanced which normally would have been disbursed in CY 1987, and

(4) New programs in 1986, such as the dairy termination and conservation reserve programs, will increase outlays in 1986. The conservation reserve will cost much more in upcoming years, perhaps as much as $2 billion annually when acreage goals are met.

Production Expenses

Perhaps the most important development in the 1986 farm income situation has been the expected 5-percent decline of farm production expenses. If more than a 6-percent drop is realized, it would be the largest annual expense cut since 1932 when expenses dropped 19 percent. We initially estimated savings of $1-$3 billion in expenses for 1986 mostly due to reduced input use. However, the expense outlook changed significantly during the spring because of the:

- o Sudden decline in fuel prices,
- o Spillover effect of the rapid drop in energy prices on fertilizer and chemical prices,
- o Continued relative stability in prices of other less energy-intensive inputs such as machinery and building materials, and
- o Lower than expected market interest rates and outstanding debt.

We expect expenses for most input categories to decline in 1986 and 1987. We anticipate 10-percent declines for energy-intensive manufactured inputs and interest expenses. Smaller decreases may reduce costs for farm-origin inputs, capital repair, and animal health costs. Interest expenses likely fell more than 10 percent in 1986 to an 8- to 10-percent drop in the average interest rate and a 2-4-percent decline in average outstanding debt. Interest costs could fall another 2-6 percent in 1987 due mainly to reductions in outstanding debt.

Debt Stabilization in Agriculture

The debt-to-asset ratio is a widely used measure of financial position for both individual farm firms and the farm sector as a whole. It is a longrun measure because an increase or decrease in a single year's income does not usually change the debt-to-asset ratio substantially.

Changes in both debt levels and the market value of assets affect this key measure of financial well-being. For example, recent large declines in real estate values (the denominator) have increased the debt ratios of many farmers. Even though their debt levels have not increased, their financial position has deteriorated. Creditors are especially concerned with eroding of asset values.

An asset's market value reflects the capitalization of the income stream generated by the asset. This value can be estimated by dividing annual net income by an interest rate or rate of return. For example, farmland that generates net cash income of $70 per acre would be valued at $700 per acre if interest rates were 10 percent. From this economic relationship, the debt-to-asset ratio (the debt ratio) equals the ratio of interest expense to income (the interest ratio).

The capitalization formula for the value of an asset (A), when net income (Inc) is capitalized by an interest rate (r) is: A=Inc/r. This assumes the rate of return is equal to the interest rate (they are in equilibrium). If both sides of the equation are divided by debt (D) owed on the asset, then:

$$\frac{A}{D} = \frac{Inc}{(r)(D)} \quad \text{or} \quad \frac{A}{D} = \frac{Inc}{Int} \text{ or } \frac{D}{A} = \frac{Int}{Inc},$$

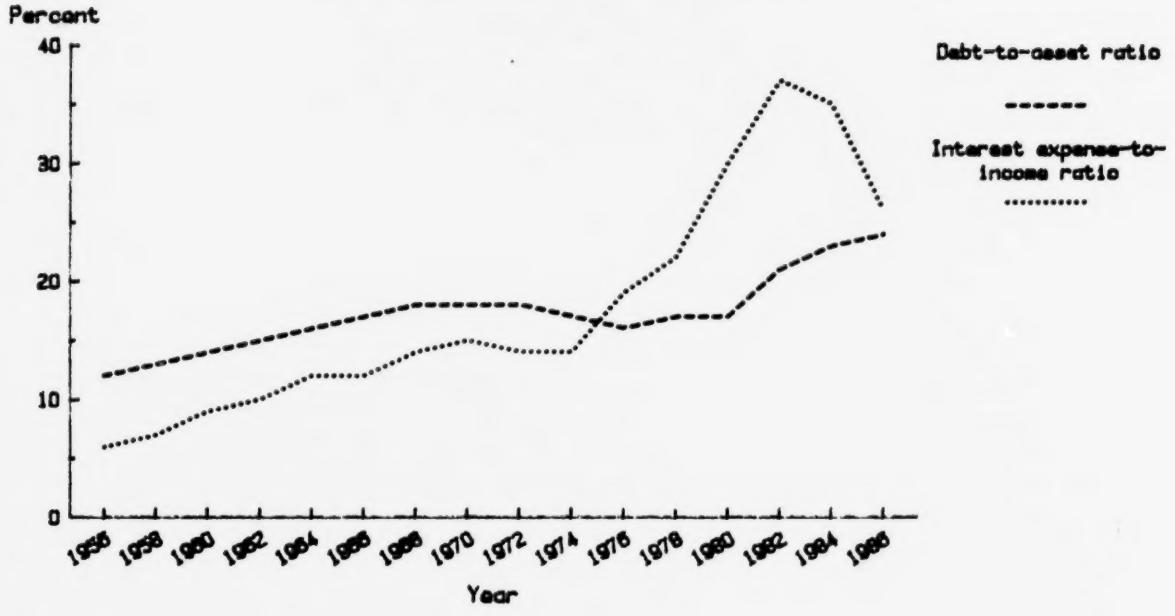
since (r) multiplied times (D) is interest expense (Int).

The debt ratio equals the interest ratio in equilibrium. Recent changes in the numerators and denominators of these ratios indicate the approach of more stable debt service in 1986 and 1987. Two stages in this adjustment process are already evident. The first is a "plateauing" of debt and interest levels during 1983-84, and the second is substantial reduction in debt level and interest expense in 1985-86.

How much more adjustment is necessary can be gauged by examining the relationship between the ratio of debt to assets and the ratio of interest expense to income. For nearly 40 years these ratios were steadily converging until 1975 when both equaled 17 percent (fig. 6). After 1975, the relationship reversed when the interest ratio averaged 35 percent during 1980-84 compared with a debt ratio of 20 percent. The stabilization of the debt ratio in 1986 (at about 0.25) following 6 years of increases and the downward trend in the interest ratio suggest that the equilibrium derived from the capitalization formula may be reached by 1988 with both ratios in the 0.23-0.25 range. This model does not include noncash labor and capital consumption costs. The key financial relationship is based on the strong association of longrun valuation and finance trends.

So, $165-$175 billion in farm debt could be feasible or sustainable should net cash income remain in the $45-billion range and should farm business assets stabilize at about $700 billion. In addition to the $20-billion-or-more decline in debt in 1983-86, another $15- to $20-billion decline would be necessary to balance debt with interest expense, income, and asset values. This decline would suggest that by the end of 1986, agricultural producers may have completed 4 years of a 6-year major debt reduction process.

Figure 6--Ratios of farm debt to assets and interest to income, 1956-86



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ECONOMIC CONDITIONS IN AGRICULTURE

The U.S. food and fiber system includes producers of agricultural commodities, suppliers of farm inputs, and consumers of farm production. Demand for farm sector output depends on domestic consumption and exports. Changes in farm sector income are indicated by measurements of productivity, marketings, prices paid for inputs, and prices received for outputs. Annual variations and longer term trends in farm income are ultimately reflected in the farm sector balance sheet where the effects of earnings, borrowing, and asset valuation are evident.

Economic conditions within the farm sector vary with geographic location, the type of commodities produced, and size of farm operation. Distributing total farm sector income, off-farm income, and Government payments among farm operations according to gross sales, enterprise types, and regions provides a more detailed description of the sector. We analyze the incidence of operator financial distress by considering the debt level and cash flow of individual operations. We evaluate financial performance of the farm sector from the perspective of agricultural lenders by estimating debt at risk of loss.

Estimates of costs of production for single, specific enterprises and of expenditure ratios from whole-farm data can indicate relative returns to farms that produce different commodities. Returns to farm operations influence total investment in agriculture. Amounts of resources employed and levels of output produced by the farm sector in the future are affected by current expectations about returns.

The Food and Fiber Sector

The contribution of the farm sector to national income and employment is examined through input-output (I/O) analysis. One determinant of farm income is domestic and foreign demand for agricultural commodities.

Income and Employment

An I/O analysis of final user demands (food, clothing and shoes, tobacco, exports, inventory change, and net Government purchases) yields estimates of total business activity needed throughout the economy to support the delivery of these demands.

The food and fiber system accounted for 18.5 percent of employment in the domestic U.S. economy and 17.5 percent of total GNP in 1985 (table 7). Over 21.3 million people worked in the food and fiber system (table 8). The farm sector employed 2.5 million people, 2.1 percent of total U.S. employment, down from 2.7 million employed in 1984. Nonfarm food and fiber system employment increased from 18.5 million workers in 1984 to 18.9 million in 1985 as the volume of economic activity in the food and fiber system grew faster than the increase in nonfarm labor productivity.

Farm sector employment has trended below the 2.8- to 3-million level set in 1975-79. Total food and fiber employment in food production, processing, and distribution increased through 1980 and has been relatively constant since then. Both farm and nonfarm employment and value-added in the food and fiber system have declined relative to the total U.S. economy.

Value-added is a measure of a sector's contribution to market value of final goods and services. Recent value-added levels of the farm sector in the $55- to $75-billion range (except in 1983) were much higher than the $43- to $49-billion range during 1975-78. Because farmers and the CCC disposed of large inventories in 1983, sales from inventories took the place of new production. Subsequent rebuilding of stocks has increased value-added in the farm sector because values of commodities are counted in the year of production, not in the year of sale.

The decline in farm sector value-added from 1982 to 1983 and subsequent recovery in 1984 and 1985 may appear deceptively steep by usual measures of farm sector income. The drop mirrored the lower level of economic activity (inventory reduction) and the exclusion of income transfers, such as Government payments, from value-added. Thus, the record-high 1983 Government payments to farmers were not included because they did not represent real economic activity.

The I/O data in tables 7 and 8 differ from previous tables published in this series. The U.S. Department of Commerce revised its deflated or constant dollar estimates of GNP and gross farm product from a base year of 1972 to a 1982 base. Thus, estimates of food and fiber employment and value-added are likely to be more accurate in the years following 1982. Changing the base year did not significantly alter estimated employment levels but did increase value-added estimates by about 0.5 percent throughout the time series.

Table 7--Value-added in the food and fiber system, selected years, 1975-85

Item	1975	1980	1981	1982	1983	1984	1985
				Million dollars			
Value-added:							
Farm sector	43.3	55.1	67.3	75.1	49.8	65.9	71.6
Nonfarm sectors	282.4	444.8	495.0	536.7	553.3	594.3	629.1
Food processing	38.7	56.0	61.7	70.0	70.4	74.8	83.0
Manufacturing	57.0	83.0	93.1	97.7	98.2	101.7	103.3
Transportation, trade and retailing	96.8	157.5	175.6	188.2	196.9	209.9	220.4
Restaurants	25.7	42.0	44.6	48.1	52.0	55.3	58.3
All other	64.2	106.3	120.0	132.7	135.8	152.6	164.2
Total food and fiber	325.7	499.9	562.3	611.8	603.1	660.2	700.8
Total domestic economy1/	1,598	2,732	3,053	3,166	3,406	3,765	3,998
				Percent value-added			
Value-added:							
Farm sector	2.7	2.0	2.2	2.4	1.5	1.8	1.8
Nonfarm sectors	17.7	16.3	16.2	17.0	16.2	15.8	15.7
Total food and fiber	20.4	18.3	18.4	19.3	17.7	17.5	17.5
Total domestic economy	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Totals may not add due to rounding.

Table 8--Employment in the food and fiber system, selected years, 1975-85

Item	1975	1980	1981	1982	1983	1984	1985
			Million workers				
Employment:							
Farm sector	2.8	2.6	2.5	2.3	2.6	2.7	2.5
Nonfarm sectors	17.3	19.0	18.9	19.1	18.6	18.6	18.9
Food processing	1.5	1.5	1.5	1.6	1.5	1.5	1.6
Manufacturing	3.2	3.3	3.3	3.3	3.2	3.0	3.0
Transportation, trade, and retailing	5.7	6.4	6.5	6.6	6.4	6.5	6.6
Restaurants	3.1	3.6	3.5	3.5	3.5	3.6	3.6
All others	3.7	4.1	4.1	4.2	4.0	4.0	4.1
Total food and fiber 1/	20.1	21.6	21.4	21.4	21.1	21.3	21.4
Total domestic economy 1/	93.8	106.9	108.7	110.2	111.6	113.5	115.5
			Percent				
Employment:							
Farm sector	3.0	2.4	2.3	2.1	2.3	2.4	2.1
Nonfarm sectors	18.4	17.8	17.4	17.3	16.6	16.4	16.4
Total food and fiber 1/	21.4	20.2	19.7	19.4	19.0	18.7	18.5
Total domestic economy 1/	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Totals may not add due to rounding.

Food Prices and Consumption

Food prices rose moderately in 1985 for the fourth consecutive year. Retail food prices averaged 2.3 percent higher in 1985 than in 1984, which was below the 1984 rise of 3.8 percent and close to the 2.1-percent increase in 1983. Moreover, 1985 had the second smallest year-to-year change in food prices since 1967.

Prices of food at eating places rose 4 percent, about the same rate as in 1984. Food prices in grocery stores rose by 1.4 percent, down from the 3.7-percent increase in 1984.

The farm value of foods averaged 6.9 percent lower than in 1984. Abundant supplies of farm products in 1985 that dropped prices received by farmers was a primary factor underlying the low rate of increase in retail food prices. Meanwhile, charges for food processing, distributing, and retailing rose more rapidly in 1985 than in previous years, resulting in a 3.5-percent increase in the farm-to-retail price spread.

As a result of 1985's abundant supplies of most foods and relatively small rise in food prices, total food consumption rose for the third consecutive year. USDA's per capita food consumption index rose about 1 percent primarily because of increases in consumption of poultry, fresh fruit, and sweeteners (table 9). The 1-percent increase in 1985 was larger than the typical annual one-half percent increase in U.S. consumption since the mid-1960's.

Table 9--Annual food consumption, retail weight equivalent, selected years, 1975-85

Item	1975	1982	1983	1984	1985 1/
			1967=100		
Aggregate food consumption index	102.4	104.5	106.7	107.5	108.6
			Pounds per capita		
Food groups:					
Red meat	144	139	144	144	144
Beef and veal	91	79	80	80	81
Pork	51	59	62	62	62
Poultry	49	64	65	67	70
Eggs	35	33	33	33	33
Flour and cereal products	144	154	149	149	152
Fats and oils, including butter	56	61	63	62	67
Fresh fruits	82	84	88	87	87
Fresh vegetables 2/	63	71	71	76	76
Sugars and sweeteners, caloric	125	139	142	147	148

1/ Preliminary.
2/ Data are for lettuce, tomatoes, onions, carrots, celery, corn, broccoli, and cauliflower.

Beef and veal consumption rose slightly, pork consumption held steady, and poultry consumption continued its long-term upward trend by increasing about 2.5 pounds per person. The use of dairy products rose because of higher consumption of cheese and lowfat milk products.

Over the years, consumers have altered their consumption of major food groups. From 1975 to 1985 beef and veal consumption per person fell 10 pounds, while pork and poultry consumption rose 11 and 21 pounds, respectively. This change was partly in response to changes in the relative prices of these products. Between 1975 and 1985, beef and veal prices increased 59 percent, pork increased 28 percent, and poultry went up 33 percent. Thus, pork and poultry prices declined relative to beef and veal.

Per capita consumption of fresh fruit rose 5 pounds during the past 5 years, reflecting greater consumption of noncitrus fresh fruits such as grapes. Consumption of the eight major fresh vegetables rose 13 pounds per person from 1975 to 1985, mainly because of increased consumption of fresh tomatoes, lettuce, onions, and broccoli. Annual per capita consumption of fats and oils has increased 21 percent since 1975, reaching a record-high 67 pounds in 1985. Similarly, sugar and sweetener consumption jumped from 125 pounds in 1975 to 148 pounds in 1985. All of the increase was due to high fructose corn syrup, which increased from 5 pounds per capita in 1975 to 44 pounds in 1985. Use of cane and beet sugar declined by 26 pounds per capita over the same period.

Exports

Exports of U.S. agricultural products declined in both volume and value during 1985 to their lowest levels in nearly a decade. During 1985 the total value of agricultural exports fell 23 percent (table 10), and export volume fell 19 percent (table 11). The decline in value exceeded the decline in volume of exports because commodity prices in 1985 were lower than in 1984.

Table 10--Value of U.S. agricultural exports, selected years, 1981-85

Commodity	1981	1984	1985	1984-85 1/
	----Billion dollars----			Percentage change
Grains and feed	21.9	17.2	11.9	-31
Corn, excluding products	9.9	7.0	5.2	-26
Wheat, including products	7.7	6.7	3.9	-42
Rice--paddy, milled	1.5	.8	.7	-21
Other	2.8	2.7	2.1	-22
Oilseeds and products	9.5	8.4	5.8	-31
Soybeans	6.2	5.4	3.7	-31
Soybean oil	.5	.8	.4	-43
Oilcake and meal	1.7	1.1	.9	-14
Other	1.1	1.1	.8	-27
Animals and products	4.0	4.2	4.2	-2
Hides and skins	1.0	1.4	1.3	-6
Meat and products	.9	.9	.9	-3
Oils, greases, fats	.8	.7	.6	-11
Poultry and products	.5	.4	.4	-8
Dairy products	.3	.4	.4	15
Other	.5	.4	.6	50
Cotton, excluding linters	2.3	2.4	1.6	-33
Fruits and preparations, including juices	1.5	1.2	1.2	-4
Vegetables and preparations	1.4	1.0	.9	-7
Nuts and preparations	.6	.6	.7	13
Tobacco, unmanufactured	1.4	1.5	1.5	1
Total	43.8	37.8	29.0	-23

1/ Percent changes are computed from data before rounding and may not correspond to figures shown in table.

Source: U.S. Department of Agriculture, Economic Research Service. Foreign Agricultural Trade of the United States, January/February 1986, pp. 7-8.

Feed and food grains continued to be the largest component of U.S. agricultural exports. Because of lower prices, corn exports decreased 10 percent in volume but 26 percent in value. The average corn price at U.S. gulf ports during 1985 was 17 percent less than during 1984. This decline was typical of corn price changes at several international pricing points. Foreign sales of wheat dropped more than 40 percent in both volume and value. The gulf port price of wheat declined 10 percent on average, but remained well above the average price of Argentine wheat.

Table 11--Volume of U.S. agricultural exports, 1984/85

Commodity	1984	1985	1984-85 1/
	- - -Million tons- -		Percentage change
Grains and feed	110.9	86.9	-22
Corn	48.9	43.9	-10
Wheat	42.2	24.8	-41
Rice	2.2	2.0	-10
All other	17.6	16.2	-8
Oilseeds and products	27.4	23.7	-13
Soybeans	19.5	16.9	-13
Soybean oil	1.0	.6	-30
Oilcake and meal	4.6	4.9	6
All other	2.3	1.3	-43
Animal products	2.4	2.5	4
Meat and products	.4	.4	4
Oils, greases, fats	1.3	1.4	2
Poultry and products	.2	.2	1
Dairy products	.4	.5	15
Cotton, excluding linters	1.5	1.1	-27
Fruits and preparations, including juices	1.5	1.4	-7
Vegetables and preparations	1.6	1.4	-12
Nuts and preparations	.4	.5	19
Tobacco, unmanufactured	.2	.2	1
Total	146.8	118.8	-19

1/ Percentages may not correspond to rounded quantities shown in the table.

Source: U.S. Department of Agriculture, Economic Research Service. Foreign Agricultural Trade of the United States, January/February 1986, pp. 7-8.

Soybean exports declined in 1985 in the same proportion as all oilseeds and oilseed products, 13 percent in volume and 31 percent in value. Average soybean prices quoted at gulf ports fell more than 20 percent between 1984 and 1985. Exports of animals and animal products were a larger proportion of the total U.S. export value during 1985 than before because sales in this category tended to be relatively more stable. The 15-percent increase in dairy exports partially offset decreases in the value of sales of other animal products.

Incomes of U.S. farmers who produce grains, soybeans, and cotton are especially sensitive to conditions in world markets. Large proportions of U.S. production of these crops have been exported in recent years. Average proportions exported annually during 1981-84 were: 61 percent of wheat production, 58 percent of milled rice, 32 percent of unmilled corn, 58 percent of soybean production, and 56 percent of raw cotton. During fiscal year (FY) 1985 (October 1984 to September 1985), 42 percent of wheat output and 44 percent of soybean production were exported. Rice exports in 1985 were the lowest since 1976 at 46 percent of production. Twenty-four percent of U.S. corn and 44 percent of cotton output were exported in 1985 compared with 44 percent and 88 percent in FY 1984.1/

The same countries have been the largest importers of U.S. agricultural products for many years. Japan is the major importer, accounting for 19 percent of total U.S. agricultural exports (table 12). Other principal purchasers individually accounted for less than 7 percent of the total export value. All importers decreased their purchases in 1985. The value of U.S. agricultural exports to Japan declined 20 percent. Russian purchases decreased 34 percent, continuing its volatile trade pattern. Egypt decreased its imports of U.S. commodities by 2 percent during 1985.

Table 12--Principal importers of U.S. agricultural products, 1984/85

Country	1984	1985	1985 rank	Percentage change, 1984-85
	Billion dollars			Percent
Japan	6.78	5.41	1	-20
USSR	2.88	1.91	2	-34
Netherlands	2.32	1.87	3	-19
Canada	1.96	1.62	4	-17
Mexico	1.99	1.44	5	-28
South Korea	1.65	1.41	6	-14
Taiwan	1.46	1.23	7	-16
Egypt	.91	.89	9	-2
United Kingdom	.75	.60	13	-20

Source: U.S. Department of Agriculture, Economic Research Service. Foreign Agricultural Trade of the United States, January/February 1986, pp. 7-8.

1/ U.S. Department of Agriculture, Economic Research Service, Foreign Agricultural Trade of the United States, March/April 1986.

Trade policies and financial conditions of importing countries have significantly influenced trade flows as have relative prices of exporting countries. The high value of the U.S. dollar, for example, limited foreign sales of agricultural commodities. The actual cost of U.S. exports depends on the value of the U.S. dollar expressed in currency units of importing countries. Foreign currency exchange rates of some major agricultural importers are listed in table 13. The high U.S. dollar value at the beginning of 1985 contributed to increases in average annual exchange rates for all currencies. U.S. agricultural products cost more on average for these importers in 1985 than in 1984 or 1983. The depreciation of the U.S. dollar during the second half of 1985 and into 1986 may encourage export sales of the remaining 1985 crop. However, the value of the U.S. dollar remained high relative to the Canadian dollar encouraging purchases of Canadian rather than U.S. grains.

Exchange rates also influence total export demand for particular commodities. A composite exchange rate index that considers trade volume and domestic inflation rates of importing countries is shown in table 14. The indices are real percentage changes in currency units per U.S. dollar. Currencies of 38 countries are weighted by the proportion of U.S. agricultural exports each purchased and adjusted for inflation relative to the U.S. Consumer Price Index (CPI) to derive the agricultural trade index. Indices for each commodity are derived from currencies of countries which import that commodity.

The real, trade-weighted dollar index declined 6 percent for all U.S. agricultural trade from May through October 1985. The U.S. dollar depreciated 10 percent against currencies of soybean-importing countries from May through October 1985. During the same period, the trade-weighted dollar for wheat was essentially unchanged. Declines in these dollar indices probably continued through December 1985 (assuming the CPI continued changing at the same rate)

Table 13--Foreign currency units per U.S. dollar

Item	Japanese yen	Dutch guilder	Canadian dollar	British pound
Average, 1983	237.5	2.853	1.232	0.6597
Average, 1984	237.6	3.209	1.295	.7517
Average, 1985	238.3	3.319	1.365	.7790
1985:				
January	254.1	3.579	1.324	.8861
May	251.6	3.510	1.375	.8001
September	236.2	3.190	1.369	.7329
December	202.7	2.829	1.395	.6919
1986:				
January	199.8	2.746	1.407	.7014
May	166.9	2.505	1.375	.6564

Sources: U.S. Department of Agriculture, Economic Research Service. Foreign Agricultural Trade of the United States, January/February 1986, pp. 7-8. U.S. Department of Agriculture, Economic Research Service. World Agriculture Situation and Outlook Report, June 1986, p. 6.

Table 14--Real trade-weighted dollar index of exchange rates, 1985

Index	May	August	October	December 1/
		April 1971 = 100		
Agricultural trade	105	102	99	91
Soybeans	102	97	92	84
Wheat	110	110	109	103
Corn	105	100	97	86
Cotton	102	100	98	97

1/ Preliminary estimates assumed CPI continued to change at rate of previous 6 months.

Source: U.S. Department of Agriculture, Economic Research Service. Agricultural Outlook, June 1986, p. 46.

and into 1986. Depreciation of the U.S. dollar, as indicated by individual exchange rates and composite indices, improved the outlook for exports of U.S. agricultural products.

Farm Sector Production and Income

Production and marketing broadly determine farm sector income. Productivity indicators are derived by comparing quantities of inputs and outputs. Production expenses vary with quantities as well as prices of inputs. Cash receipts depend on the volume of marketed output and the prices received. The results of production and marketing decisions made by individual farm operators throughout the year are combined and summarized in income and cashflow statements.

U.S. Farm Output, Productivity, and Expenses

The total farm output index (table 15) increased 6 percent from 1984 and was 1 percent above the 1981 record. Livestock production was record high, surpassing 1984 production by 3 percent. Meat animal production, based on stable cattle and hog output, did not change. Milk production was up 6 percent due to increased output per cow (4 percent) and herd size (2 percent). Production of poultry products rose 3 percent to a new record, with broiler and turkey production increases of 5 percent and 11 percent, respectively.

Total farm input use fell 3 percent in 1985. Farm output rose and input use fell, resulting in 3 percent greater productivity and a new record. Quantities of some major types of farm inputs changed little from 1984. Farm use of fertilizer nutrients in 1985 remained close to the year-earlier level of nearly 22 million tons. Encouraged by favorable early season conditions in corn-growing areas, farmers used more nitrogen. Since phosphate and potash use could be temporarily reduced without affecting yields, farmers used less of them to cut costs. Gasoline and diesel fuel for farm use declined 100 million gallons in 1985. Part of this decline was due to increases in acreage set-aside requirements for wheat and corn.

Table 15--Farm sector productivity and inputs, selected years, 1970-85

Item	Unit or base period	1970	1975	1980	1981	1982	1983	1984	1985
Output index:									
Crops	1977=100	77	93	101	117	117	88	111	1/ 116
Livestock	do.	99	95	108	109	107	109	107	1/ 110
Total	do.	84	95	104	118	116	96	112	1/ 119
Input index	do.	97	96	103	102	99	95	96	1/ 93
Productivity index 2/	do.	87	99	101	116	117	101	117	1/ 121
Principal crops:									
Planted	Mil. acres	293.2	332.2	356.7	363.2	358.7	309.5	345.1	342.3
Harvested	do.	283.1	324.0	340.1	354.3	349.6	293.9	335.7	331.1
Machinery on farms:									
Tractors 3/	Thousands	4,619	4,469	4,752	4,726	4,697	4,669	4,671	4,676
Motor trucks	do.	2,984	3,032	3,344	3,350	3,389	3,435	3,402	3,380
Grain combines 4/	do.	790	524	652	650	647	644	644	645
Corn pickers and shellers 5/	do.	635	615	701	696	690	684	684	684
Balers 6/	do	708	667	756	770	785	800	800	800
Total tractor horsepower	Mil. horse-power	203	222	304	306	306	309	311	311
per tractor	Horsepower	56	61	64	65	65	66	67	67
Fertilizer used: 7/									
Nitrogen	1,000 tons	7,459	8,608	11,407	11,924	10,983	9,127	11,092	11,504
Phosphate	do.	4,574	4,511	5,432	5,434	4,814	4,138	4,901	4,641
Potash	do.	4,035	4,453	6,245	6,320	5,631	4,831	5,797	5,510
Total	do	16,968	17,572	23,084	23,678	21,428	18,096	21,790	21,655
Liming materials 8/	do.	25,901	31,128	34,402	29,647	23,237	25,383	26,592	n/a
Fuels for farming:									
Gasoline	Billion gals	4.0	4.5	3.0	2.7	2.4	2.3	2.1	1.9
Diesel	do.	1.9	2.4	3.2	2.9	2.9	3.0	3.0	2.9

n/a=not available.
1/ Preliminary. 2/ Data computed from unrounded index numbers. 3/ Includes wheel- and crawler-type tractors. 4/ Data for 1975 and after are for self-propelled combines only. 5/ Includes cornheads for combines. 6/ Does not include balers producing bales weighing more than 200 pounds. 7/ Includes 50 States and Puerto Rico. Includes fertilizer for nonfarm use. 8/ Includes 48 States only.

Onfarm tractor inventories of 4.68 million vehicles with an average unit size of 67 horsepower (hp) remained close to year-earlier levels. Total power for the farm tractor inventory was unchanged at 311 million hp. The number of motor trucks remained near 3.4 million vehicles as buying leveled off. Inventories of other types of machinery were also unchanged.

Crop production rose 5 percent in 1985, nearly equaling records set in both 1981 and 1982 (table 16). Feed grains and oil crops led the production gain with increases of 15 and 10 percent, respectively. Cotton and vegetables were up 3 and 4 percent, respectively. Tobacco production dropped 12.5 percent, while food grains and fruits and nuts each dropped about 5 percent. Production of hay and forage and sugar crops were close to 1984 levels.

Combined per acre growth in crop yields exceeded 5 percent in 1985. Many crops recorded high yields, including corn, sorghum, oats, rice, soybeans, cotton, and tobacco. Yields increased substantially for soybeans, sorghum, corn, and rice with gains of 21, 18, 11, and 10 percent, respectively.

Production levels of crops depend on acres planted as well as yields. Reduced acreage lowered 1985 production of wheat, rice, barley, hay, and tobacco. Spurred by yield increases, corn and sorghum production increased about 16 and 28 percent, respectively, followed by a 13-percent increase in soybean production. Eggs were the only livestock product for which output volume decreased from the 1984 level.

Table 16--Crop and livestock production, 1982-85

Commodity	Unit	1982	1983	1984	1985	Percentage change 1983-84	Percentage change 1984-85
						Percent	Percent
Crops:							
Wheat	Mil. bu	2,765.0	2,419.8	2,594.8	2,425.1	7.2	-6.6
Rice	Mil. cwt	153.6	99.7	138.8	136.0	39.2	-2.0
Corn	Mil. bu	8,235.1	4,174.7	7,674.0	8,865.0	83.8	15.5
Oats	do.	592.6	477.0	473.7	520.8	-.7	10.0
Barley	do.	515.9	508.9	599.2	591.4	17.7	-1.3
Sorghum	Mil. cwt	835.1	487.5	866.2	1,112.6	77.7	28.4
Hay-all	Mil. tons	149.2	140.8	149.0	150.6	7.0	-1.1
Soybeans	Mil. bu	2,190.3	1,635.8	1,860.9	2,098.5	13.8	12.8
Cotton	Mil. bales	12.0	7.8	13.0	13.4	67.0	3.5
Tobacco	Mil. lbs	1,994.5	1,429.0	1,728.0	1,511.2	20.9	-12.5
Livestock products:							
Beef	Mil. lbs	22,366	23,060	23,418	23,557	1.6	.6
Veal	do.	14,121	15,117	14,718	14,721	-2.6	0
Broilers	do.	12,167	12,400	13,017	13,761	5.0	5.7
Turkeys	do.	2,522	2,649	2,685	2,942	1.4	9.6
Eggs	Mil. doz	5,802	5,659	5,708	5,688	.9	-.4
Milk	Bil. lbs	135.5	139.7	135.4	143.7	-3.0	6.1

Source: U.S. Department of Agriculture, National Agricultural Statistics Service, "Crop Production, 1985 Summary," and "Agricultural Prices, 1985 Summary."

Prices paid for and quantities of inputs purchased by farmers were both reflected in production expenses of the sector (table 17). The total cost of items produced and used in the farm sector decreased 5 percent and items manufactured outside the sector decreased 3 percent. Pesticides, hired labor, and machine hire and customwork were the only expenses which increased between 1984 and 1985. Notable among these was growth in expenditures for custom feed operations. The most significant decrease was interest expense, down 11 percent.

Table 17--Farm production expenses, 1980-85

Item	1980	1981	1982	1983	1984	1985	Percentage change 1983-84	Percentage change 1984-85
	Million dollars						Percent	
Feed	21.0	20.9	18.6	21.7	19.9	19.6	-9	-1
Livestock	10.7	9.0	9.7	8.8	9.5	9.0	8	-5
Seed	3.2	3.4	3.2	3.0	3.4	3.4	15	-2
Farm origin inputs	34.9	33.3	31.5	33.5	32.8	31.9	-2	-3
Fertilizer	9.5	9.4	8.0	7.1	7.4	7.3	5	-2
Fuels and oils	7.9	8.6	7.9	7.4	7.1	6.6	-5	-8
Electricity	1.5	1.7	2.0	2.1	2.2	2.1	1	-4
Pesticides	3.5	4.2	4.3	4.2	4.8	5.0	15	4
Manufactured inputs	22.4	23.9	22.2	21.3	21.5	20.9	3	-3
Short-term interest	8.7	10.7	11.3	10.6	10.4	8.8	-2	-15
Real estate interest	7.5	9.1	10.5	10.8	10.7	9.9	-1	-8
Total interest 1/	16.3	19.9	21.8	21.4	21.1	18.7	-1	-11
Repair and operation	7.6	7.6	7.7	7.5	7.9	7.5	4	-5
Hired labor	9.3	8.9	10.2	9.7	9.8	10.3	2	5
Machine hire and customwork	1.8	2.0	2.0	1.9	2.2	2.2	14	1
Animal health	1.0	1.2	1.1	1.4	1.3	1.2	-5	-9
Dairy deductions	0	0	0	.6	.7	.2	0	0
Other operating expenses	8.4	8.6	9.6	9.2	9.5	10.3	3	8
Total operating expenses 1/	28.1	28.3	30.6	30.4	31.4	31.7	3	1
Depreciation	21.5	23.6	23.9	23.5	23.0	21.1	-2	-8
Taxes	3.9	4.2	4.4	4.3	4.4	4.4	1	1
Net rent 2/	6.1	6.2	6.2	5.4	7.5	7.4	36	-2
Total overhead expenses 1/	31.4	34.0	34.5	33.3	34.9	32.9	5	-6
Total production expenses 1/	133.1	139.4	140.7	139.5	141.7	136.1	2	-4

1/ Totals may not add due to rounding. 2/ Rent paid to nonoperating landlords.

Expenses for inputs originating on farms (feed, replacement livestock, seed) fell 3 percent. Shipments of cattle and sheep between States for feeding and breeding declined, and prices paid for replacement livestock remained constant, resulting in a 5-percent fall in purchased livestock expenses. Lower feed grain prices outweighed increased feed use, leaving feed expenses 1 percent below the 1984 level. Reduced planted acreage left seed expenses about 2 percent below the previous year.

Manufactured input use (fertilizer, energy, and pesticides) fell 3 percent to $20.9 billion, the same level as the 1983 PIK year and the lowest since 1979. The pesticide category, based on both purchases and flat prices, was the only energy-based input to increase. Major reasons behind the 8-percent drop in fuel expenses were: reduced acreage planted to principal crops, increased use of conservation tillage, and increased use of fuel efficient machinery. The index of prices paid by farmers for fuel and energy was unchanged as a 3-percent drop in diesel fuel and a 4-percent fall in liquefied petroleum (lp) gas prices were offset by small increases in gasoline prices and a 5-percent increase in cost per kWh for electricity. Lower prices dropped fertilizer expenses 2 percent to $7.3 billion, the lowest nominal level since 1983.

The continued liquidation of the cattle herd has likely been a factor in the decline in animal health expenses (veterinary fees and medicines). This category peaked at $1.4 billion in 1983, and then fell 5 percent and 9 percent in 1984 and 1985, respectively.

Price Ratios and Cash Receipts

The ratio of the index of prices received to the index of prices paid is a very broad indicator of price movements which affect farm sector returns. However, net returns are ultimately determined by actual marketing volume, total expenses, and Government payments.

The index of average prices received by farmers during CY 1985 fell 10 percent. Prices averaged 14 percent less for crops and 7 percent less for livestock. Figure 7 illustrates recent relationships between crop and livestock prices. The average CY corn price fell 18 percent to $2.49 (table 19), just under the $2.55 CCC loan rate. Corn peaked at $2.70 in April and fell steadily to a low of $2.11 during October. Soybean prices averaged 23 percent below their CY 1984 level as stocks continued to build. Two consecutive years of high soybean production followed the 1983 drawdown of stocks caused by the PIK program and widespread drought conditions.

Livestock prices fell for all major commodities except calves and turkeys. Egg farmers suffered the largest decline with an 18-percent reduction to 57 cents per dozen. Part of this decline reflected a return to more normal market conditions following the unusually high 1984 average price. Hog prices fell 7.8 percent as pork production and supplies of competing beef and poultry meats remained large relative to demand.

Cash receipts from marketings totaled $142.1 billion in 1985, almost equal to the 1984 figure (table 20). Livestock receipts declined 5 percent as prices received fell 7 percent, outweighing a gain in output caused by higher poultry and dairy production. Poultry and egg receipts fell in 1985 after the unusually strong 1984 gain of 22 percent caused partly by the price-enhancing influence of the Avian influenza scare. Despite a 5-percent cut in prices received, milk receipts increased slightly.

Table 18--Index of prices received/paid by farmers, 1980-85

Item	1980	1981	1982	1983	1984	1985	Percentage change 1983-84	Percentage change 1984-85
	-1977=100-						-Percent-	
Prices received:								
Crops	125	134	121	128	139	120	9	-14
Food grains	165	166	146	148	144	133	-3	-8
Feed grains and hay	132	141	120	143	145	122	1	-16
Oil crops	102	110	88	102	109	84	7	-23
Cotton	114	111	92	104	108	92	4	-15
Tobacco	125	140	153	155	153	154	-1	1
All fruit	124	130	175	128	202	183	58	-9
Vegetables	113	136	126	130	135	128	2	-5
Livestock	144	143	145	141	146	136	3	-7
Meat animals	156	150	155	147	151	142	3	-6
Poultry and eggs	112	116	110	118	135	119	14	-12
Dairy products	135	142	140	140	139	131	-1	-6
All farm products	134	139	133	135	142	128	5	-10
Prices paid:								
Production items	138	148	150	153	155	151	1	-3
Feed	123	134	122	134	135	116	1	-14
Feeder livestock	177	164	164	160	154	154	-4	0
Seed	118	138	141	141	151	153	7	1
Fuels and energy	188	213	210	202	201	201	0	0
Fertilizer	134	144	144	137	143	135	4	-6
Farm chemicals	102	111	119	125	128	128	2	0
Farm and motor supplies	134	147	152	152	147	146	-3	-1
Auto and trucks	123	143	159	170	182	193	7	6
Tractors and self-propelled machinery	136	152	165	174	181	178	4	-2
Other farm machinery	132	146	160	171	180	183	5	2
Building and fencing	128	134	135	138	138	136	0	-1
Services and cash rent	125	137	145	146	149	150	2	1
Farm wage rates	126	137	144	148	151	154	2	2
Farm-origin items	143	145	139	144	144	133	0	-8
Nonfarm-origin items	137	153	162	165	168	167	2	-1
Production items, interest, taxes, and wage rates	139	151	156	159	161	157	1	-2
Commodities and services, interest, taxes, and wages	138	151	157	161	164	163	2	-1
Ratio of prices received to prices paid	97	92	85	84	86	79	2	-8

1/ Index of prices received by farmers for all farm products divided by prices paid by farmers for commodities, services, interest, taxes, and wages.

Source: U.S. Department of Agriculture, National Agricultural Statistics Service, Agricultural Statistics Board, "Agricultural Prices."

Figure 7--Prices received, crops and livestock products, 1983-86

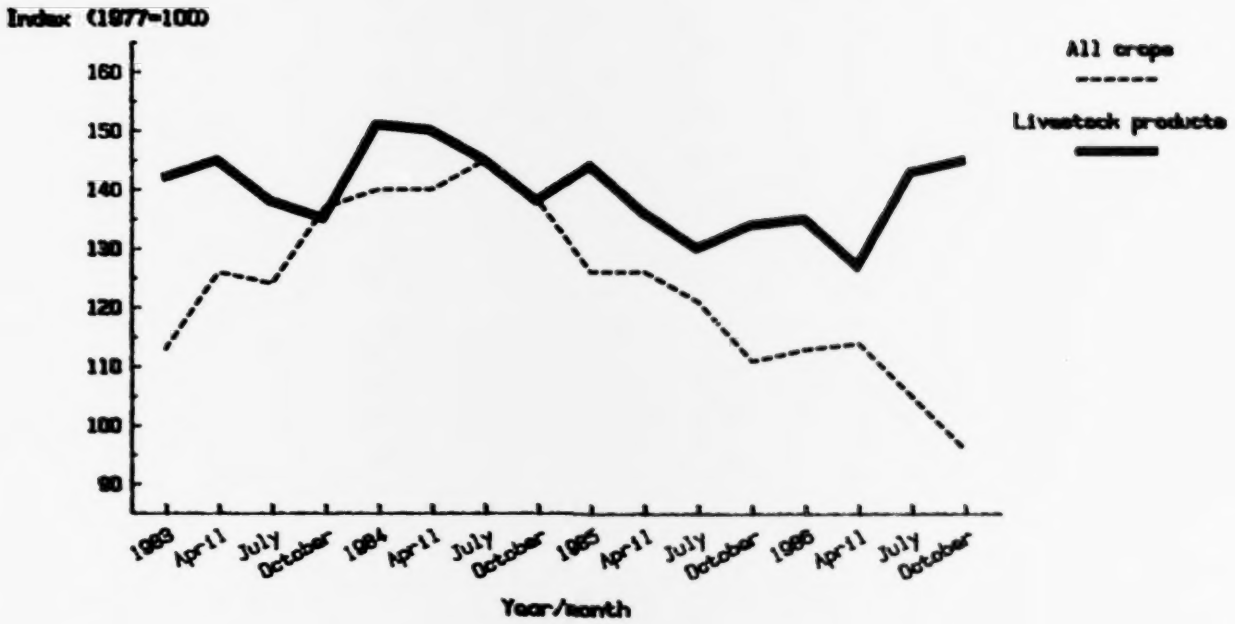


Table 19--Average annual prices received by farmers 1982-85 1/

Commodity	Unit	1982	1983	1984	1985	Percentage change 1983-84	Percentage change 1984-85
						- -Percent- -	
Crops:							
Wheat	Dollars/bu	3.52	3.58	3.46	3.20	-3.4	-7.5
Rice	Dollars/cwt	8.36	8.31	8.32	7.85	.1	-5.6
Corn	do.	2.37	2.99	3.05	2.49	2.0	-18.4
Oats	do.	1.69	1.54	1.74	1.41	13.0	-19.0
Barley	do.	2.28	2.32	2.44	2.10	5.2	-13.9
Sorghum	Dollars/cwt	4.00	4.89	4.60	3.98	-5.9	-13.5
All hay	Dollars/ton	69.17	73.66	75.38	70.05	2.3	-7.1
Soybeans	Dollars/bu	5.78	6.73	7.02	5.42	4.3	-22.8
Cotton 2/	Dollars/lb	.56	.63	.66	.56	4.3	-14.8
Tobacco	do.	1.73	1.67	1.65	1.60	-1.0	-3.1
Livestock and products:							
Cattle	Dollars/cwt	56.97	55.83	57.56	53.96	3.1	-6.3
Calves	do.	60.18	62.13	60.23	62.43	-3.1	3.7
Hogs	do.	53.99	46.23	47.61	43.88	3.0	-7.8
Broilers	do.	26.83	29.32	33.21	30.18	13.3	-9.1
Turkeys	do.	37.53	36.48	46.59	47.19	27.7	1.3
Eggs	Cents/doz	58.49	63.08	70.28	57.41	11.4	-18.3
All milk	Dollars/cwt	13.59	13.57	13.45	12.73	-.9	-5.4

1/ Calendar year simple average.
2/ Upland cotton lint.

Source: U.S. Department of Agriculture, National Agricultural Statistics Service, Agricultural Statistics Board, "Agricultural Prices."

Table 20--Cash receipts by commodity, 1980-85

Item	1980	1981	1982	1983	1984	1985	Percentage change 1983-84	Percentage change 1984-85
				Billion dollars			Percent	
Crop receipts:								
Food grains	10.4	11.6	11.5	9.7	9.6	8.8	-2	-8
Wheat	8.9	9.9	9.9	8.8	8.5	7.9	-4	-7
Rice	1.5	1.7	1.5	.9	1.0	.9	18	-9
Feed grains and hay	18.3	17.8	17.4	15.4	15.7	21.4	2	36
Corn	14.0	13.4	12.8	10.9	10.7	16.0	-2	50
Oats	.3	.4	.3	.3	.3	.3	0	-17
Barley	.7	.9	.8	1.0	1.1	1.0	8	-4
Grain sorghum	1.4	1.3	1.5	1.1	1.4	1.9	27	36
All hay	1.9	1.9	2.0	2.1	2.3	2.2	8	-4
Oil crops	15.5	13.9	13.8	13.5	13.9	12.2	2	-12
Soybeans	14.2	12.2	12.5	12.1	12.2	10.8	1	-11
Peanuts	.6	1.0	.8	.8	1.2	1.0	51	-13
Other oil crops	.6	.6	.5	.6	.5	.4	-23	-14
Cottonlint and seed	4.5	4.1	4.5	3.7	3.3	3.8	-12	16
Tobacco	2.7	3.3	3.3	2.8	2.8	2.7	3	-4
Fruits and nuts	6.6	6.6	6.8	6.1	6.8	6.8	12	0
Vegetables	7.3	8.8	8.1	8.5	9.2	8.6	9	-7
Other crops	6.6	6.5	7.0	7.3	7.9	8.3	8	5
Subtotal, crops 1/	71.8	72.5	72.4	67.0	69.2	72.7	3	5
Livestock receipts:								
Red meats	41.2	39.7	40.9	38.9	40.8	38.2	5	-6
Cattle	29.3	27.4	27.8	26.7	28.7	26.7	8	-7
Calves	2.5	2.2	2.0	2.0	2.0	2.1	-2	5
Hogs	8.9	9.8	10.7	9.8	9.7	8.9	-1	-8
Sheep and lambs	.5	.4	.4	.4	.5	.5	9	8
Poultry and eggs	9.1	9.9	9.5	10.0	12.2	11.2	22	-8
Broilers	4.3	4.6	4.5	4.9	6.0	5.7	23	-6
Turkeys	1.3	1.2	1.3	1.3	1.7	1.8	30	10
Eggs	3.2	3.6	3.4	3.4	4.1	3.3	19	-20
Other poultry	.3	.4	.4	.4	.5	.4	12	-4
Dairy products	16.4	18.1	18.2	18.8	17.9	18.1	-4	1
Wholesale milk	16.1	17.8	17.9	18.5	17.7	17.8	-4	1
Retail milk	.3	.3	.3	.3	.3	.3	-4	10
Other livestock	1.2	1.4	1.6	1.8	1.9	1.9	6	-1
Subtotal, livestock 1/	68.0	69.2	70.2	69.5	72.9	69.4	5	-5
Total receipts 1/	139.8	141.7	142.6	136.5	142.2	142.1	4	0

1/ Totals may not add due to rounding.

Farm Income and Cash Flow

Net farm income measures the net value of agricultural production for a given calendar year, regardless of whether commodities are sold, placed under CCC loan, fed, or placed in inventory. It is the difference between gross farm income, including the value of inventory change, and total farm production expenses. Net farm income includes benefits and expenses associated with farm operator households such as the value of commodities consumed onfarm and the rental value of operator dwellings.

Net cash income measures the total income that farmers choose to receive in a given year, regardless of the level of production or the year the marketed output was produced. It is the difference between gross cash income received from farming and cash expenses incurred. We exclude income and expenses associated with the farm household.

Net cash flow is the sum of net cash income, the change in loans outstanding, and net rent paid to all landlords, minus gross capital expenditures. It measures cash available to operators and landlords from farming in a calendar year and indicates the shortrun financial position of farmers and their ability to meet current obligations.

Table 21 shows two key variables in current farm income estimates, total production expenses (item 8) and cash expenses (item 7) and illustrates the role of expense categories in offsetting declines in farm income measures. Total expenses declined almost $6 billion between 1984 and 1985. Declining fuel bills, prices for petroleum-based farm inputs, lower interest expenses, and acreage reduction all contributed.

Total production expenses consist of both cash and noncash items, while cash expenses contain only the former. Both expenses include inputs of manufactured and farm origin, interest payments, several operating expenses, and overhead costs. Inputs of farm origin in this aggregate include feed, seed, and livestock. Manufactured inputs consist of fertilizer, fuels and oil, electricity, and agricultural chemicals. Both short-term and long-term obligations are reflected in interest payment expenses. Operating expenses include costs incurred for capital repairs and operation, hired labor, machine hire and customwork, animal health-related expenditures, net deductions from milk prices, and miscellaneous expenses. Overhead costs include property taxes and net rent to nonoperating landlords.

By definition, cash expenses will be less than total production expenses in any given year. In 1984 and 1985, cash expenses averaged roughly 82 percent of the value of total production expenses. The major difference between these two categories is that cash expenses exclude depreciation, perquisites to hired labor such as meals and lodging, and expenditures on the operator's dwelling. These definitions suggest that cash expense is more of a business concept, while total production expenses is a broader measure that incorporates costs associated with maintenance of the farm household and hired labor.

Nominal net cash income increased over $5 billion from 1984 to a record $44 billion during 1985. Real net cash income (in 1982 dollars) increased from $36.3 billion in 1984 to $39.5 billion in 1985. This 8.5-percent increase was the largest constant dollar gain since 1978. Cash receipts from crops

Table 21--Farm income and cash flow statement, 1980-85*

Item	1980	1981	1982	1983	1984	1985
			Billion dollars			
1. Cash receipts	139.7	141.6	142.6	136.5	142.2	142.1
Crops 1/	71.7	72.5	72.4	67.0	69.2	72.7
Livestock	68.0	69.2	70.2	69.5	72.9	69.4
2. Direct Government payments	1.3	1.9	3.5	9.3	8.4	7.7
Cash payments	1.3	1.9	3.5	4.1	4.0	7.6
Value of PIK commodities	0	0	0	5.2	4.5	.1
3. Farm-related income 2/	2.3	2.5	4.5	4.4	4.3	6.4
4. Gross cash income (1+2+3) 3/	143.3	146.0	150.6	150.2	154.9	156.2
5. Nonmoney income 4/	12.3	13.8	14.1	13.2	13.3	11.5
6. Value of inventory change	-6.3	6.5	-1.3	-10.9	6.3	-1.1
7. Gross farm income (4+5+6)	149.3	166.3	163.4	152.4	174.4	166.6
8. Cash expenses 5/, 6/	109.1	113.2	113.8	113.0	115.6	112.1
9. Total expenses	133.1	139.4	140.7	139.5	141.7	136.1
10. Net cash income (4-8):						
Nominal	34.2	32.8	36.8	37.1	39.3	44.0
Real, 1982 dollars 7/	39.9	34.9	36.8	35.7	36.4	39.5
11. Net farm income (7-9):						
Nominal total net	16.1	26.9	22.7	13.0	32.7	30.5
Real, 1982 dollars 7/	18.8	28.6	22.7	12.5	30.3	27.3
12. Off-farm income	34.7	35.8	36.4	37.0	37.9	40.8
13. Changes in loans	15.1	15.6	7.3	3.5	-1.6	-14.8
Real estate	9.3	9.4	4.0	2.5	-.8	-5.6
Nonreal estate 8/	5.9	6.2	3.4	.9	-.8	-9.2
14. Rental income 9/	6.1	6.4	6.4	5.7	7.8	8.0
15. Capital expenditures 6/	18.0	16.8	13.7	13.0	12.5	10.1
16. Net cash flow (10+13+14-15)	37.5	37.9	37.0	33.3	33.0	27.1

* Totals may not add due to rounding.

1/ Includes net CCC loans. 2/ Income from sales of forest products, customwork, machine hire, farm recreational activities, and other miscellaneous sources. 3/ Numbers in parentheses indicate the combination of items required to calculate a given item. 4/ Value of home consumption of farm products and imputed rental value of farm dwellings. 5/ Excludes perquisites to hired labor and depreciation of farm capital. 6/ Excludes farm households. 7/ Deflated by the GNP implicit price deflator. 8/ Excludes CCC loans. 9/ Includes changes in currency and demand deposits.

(including CCC loans) and livestock decreased slightly from 1984 as did direct Government payments. Reduced production expenses and increased income from customwork and machine hire accounted for most of the gain in net cash income.

Net farm income declined in 1985, whether measured in nominal or deflated dollars, but remained above 1982 and 1983 levels. Rental value of farm dwellings and inventory change contributed to the decline. Livestock producers, especially cattle ranchers, reduced inventories during 1985. Inventories of grain held by operators were also drawn down while quantities under CCC loans increased significantly during the last quarter of 1985.

Values of real estate and nonreal estate loans outstanding (excluding CCC loans) fell over $15 billion by the end of 1985. Influenced by negative changes in loans (paydowns), 1985 net cash flow was at its lowest level in 5 years despite lower capital expenditures. Nominal net cash flow was 20.7 percent less in 1985 than in 1984 and 36.6 percent less than in 1981.

Income Distribution in the Farm Sector

Because the income of particular farm types may move in the opposite direction of sector income, it is useful to examine the distribution of income in agriculture. Farm income can be distributed among farm operations according to type (major types of commodities produced) and size (gross value of sales). Off-farm income and Government payments, in particular, vary markedly in magnitude and importance to farms of different sizes and types. The distributions that follow are derived utilizing benchmark distributors from the 1982 Census of Agriculture.

Distribution of Total Income by Enterprise Type

Livestock and crop (aggregate) farm types are defined as those receiving over half of their cash receipts from livestock and crops, respectively. Classifying U.S. farms by enterprise type indicates that livestock farms slightly outnumbered crop farms in 1983-85. Within these broad classifications are more narrowly specified enterprise types, again defined according to the sources of cash receipts.

Crop farms received over 60 percent of net cash income and net farm income while constituting less than 50 percent of farm numbers (table 22). Net cash income for crop farms increased $5.4 billion to $27.7 billion in 1985. Net farm income among crop farms declined $1.1 billion (5 percent) largely due to substantial reductions in inventories. Crop farms received over 80 percent of total Government payments. This component of income declined $425 million while cash receipts rose slightly for all major crop enterprises. Earnings from machine hire and customwork, including livestock feed operations, helped minimize the effects of large inventory drawdowns. These items contributed over $1.5 billion to a record $81.8-billion gross cash income for crop farms.

The performance of cash grain farms heavily influenced crop farm income because cash grain farms represented 56 percent of all crop farms. Net cash income rose 31 percent among cash grain farms while net farm income was down $1 billion (12 percent). Major declines in prices received for food and feed grains underlie this fall in net value of agricultural production. Average prices received for crops fell 14 percent in 1985. An almost $2.5-billion drop in cash grain farms' production expenses provided some relief from this large decline in prices received.

Table 22--Income distribution by type of farm, 1983-85

Item and year	Total, all farms	Total, crop farms	Cash grain farms	Cotton farms	Tobacco farms	Other field crop farms	Vegetable and melon farms	Fruit and nut farms
				Thousands				
Number of farms:								
1983	2,370	1,091	611	22	137	107	33	89
1984	2,333	1,074	601	22	135	105	32	88
1985	2,285	1,052	589	21	132	103	31	86
				Million dollars				
Cash receipts:								
1983	136,460	65,488	33,819	3,532	2,781	5,147	6,151	6,054
1984	142,153	67,603	37,334	3,494	3,086	5,108	4,366	6,437
1985	142,178	70,556	38,868	3,221	5,349	4,585	4,585	4,443
Government payments:								
1983	9,295	7,929	6,382	921	65	154	69	23
1984	8,430	6,900	5,589	775	57	132	59	20
1985	7,704	6,375	4,954	903	50	120	60	21
Other farm income: 1/								
1983	4,395	3,403	1,562	155	63	976	109	214
1984	4,278	3,358	1,454	145	61	1,071	105	197
1985	6,360	4,823	2,402	237	94	1,155	160	332
Gross cash income: 2/								
1983	150,151	76,819	41,764	4,608	2,909	6,278	6,329	6,291
1984	154,861	77,861	44,377	4,414	3,203	6,311	4,531	6,654
1985	156,242	81,755	46,224	4,806	3,366	6,624	4,805	7,112
Nonmoney income: 3/								
1983	2,288	-3,435	-4,327	-758	180	448	151	712
1984	19,538	12,674	7,678	1,158	770	1,123	302	766
1985	10,399	5,171	2,842	-146	434	770	194	639
Gross farm income: 4/								
1983	152,438	73,384	37,437	3,850	3,090	6,726	6,480	7,003
1984	174,398	90,535	52,056	5,572	3,973	7,434	4,832	7,420
1985	166,641	86,926	49,066	4,660	3,801	7,394	4,999	7,751
Cash expenses: 5/								
1983	113,048	52,987	32,930	2,832	2,161	3,027	2,703	4,443
1984	115,612	55,506	34,594	2,961	2,240	3,175	2,843	4,643
1985	112,201	54,017	33,355	2,884	2,168	3,119	2,855	4,678
Total expenses:								
1983	139,468	65,371	40,625	3,494	2,666	3,735	3,335	5,481
1984	141,712	68,037	42,404	3,630	2,745	3,892	3,485	5,691
1985	136,195	65,569	40,487	3,500	2,632	3,785	3,465	5,679
Net farm income: 6/								
1983	-12,970	8,013	-3,188	356	424	2,991	3,145	1,522
1984	32,686	22,498	9,652	1,942	1,228	3,542	1,348	1,728
1985	30,446	21,357	8,579	1,159	1,169	3,608	1,534	2,073
Net cash income: 7/								
1983	37,103	23,832	8,834	1,776	748	3,251	3,626	1,848
1984	39,249	22,355	9,783	1,453	964	3,136	1,688	2,011
1985	44,041	27,738	12,870	1,922	1,198	3,506	1,950	2,434
Deflated net farm income: 8/								
1983	12,495	7,720	-3,072	343	408	2,882	3,030	1,466
1984	30,237	20,812	8,929	1,796	1,136	3,277	1,247	1,599
1985	27,257	19,210	7,680	1,038	1,046	3,230	1,373	1,855

See footnotes at the end of this table.

continued--

Table 22--Income distribution by type of farm, 1983-85--continued

Item and year	Horticulture specialty farms	General crop farms	Total, livestock farms	Cattle, hog, and sheep farms	Dairy farms	Poultry and egg farms	Animal specialty farms	General livestock farms
				Thousands				
Number of farms:								
1983	31	62	1,279	960	174	44	69	32
1984	30	61	1,259	945	172	44	68	31
1985	30	60	1,233	925	168	43	66	30
				Million dollars				
Cash receipts:								
1983	4,467	3,535	70,972	37,421	20,343	10,296	1,595	1,317
1984	4,228	3,549	74,550	42,120	19,107	10,601	1,370	1,350
1985	4,443	3,664	71,622	40,562	18,306	10,117	1,308	1,329
Government payments:								
1983	4	310	1,366	1,091	182	35	5	53
1984	4	264	1,530	775	660	32	4	59
1985	3	264	1,329	706	539	28	4	52
Other farm income: 1/								
1983	25	298	993	706	185	41	27	34
1984	23	302	919	654	171	39	25	31
1985	39	405	1,537	1,092	287	64	42	52
Gross cash income: 2/								
1983	4,497	4,143	73,331	39,218	20,710	10,373	1,627	1,403
1984	4,256	4,115	77,000	43,549	19,938	10,672	1,399	1,441
1985	4,485	4,333	74,487	42,360	19,132	10,209	1,354	1,433
Nonmoney income: 3/								
1983	178	-20	5,723	3,941	886	211	575	110
1984	189	689	6,864	4,486	1,218	323	588	248
1985	160	278	4,783	3,020	902	192	505	163
Gross farm income: 4/								
1983	4,675	4,123	79,054	43,159	21,596	10,584	2,202	1,513
1984	4,445	4,804	83,863	48,036	21,157	10,995	1,987	1,689
1985	4,646	4,610	79,270	45,380	20,035	10,401	1,859	1,596
Cash expenses: 5/								
1983	2,061	2,831	60,061	34,027	14,944	7,816	1,413	1,859
1984	2,102	2,949	60,106	34,507	14,808	7,510	1,407	1,874
1985	2,084	2,875	58,184	33,296	14,329	7,414	1,357	1,787
Total expenses:								
1983	2,542	3,493	74,097	41,980	18,437	9,643	1,744	2,294
1984	2,576	3,614	73,675	42,297	18,151	9,205	1,725	2,297
1985	2,530	3,490	70,627	40,417	17,393	9,000	1,648	2,169
Net farm income: 6/								
1983	2,133	630	4,957	1,179	3,159	943	459	-781
1984	1,869	1,190	10,188	5,739	3,005	1,790	262	-608
1985	2,116	1,120	8,643	4,963	2,641	1,401	212	-574
Net cash income: 7/								
1983	2,436	1,312	13,271	5,191	5,766	2,557	214	-456
1984	2,154	1,167	16,894	9,043	5,130	3,162	-8	-433
1985	2,401	1,457	16,303	9,064	4,803	1,794	-3	-354
Deflated net farm income: 8/								
1983	2,055	607	4,776	1,136	3,044	906	442	-752
1984	1,729	1,101	9,425	5,309	2,780	1,656	243	-563
1985	1,894	1,003	7,738	4,443	2,365	1,254	190	-514

1/ Includes machine hire, customwork, recreation service, and forest product sales. 2/ Equals cash receipts plus Government payments plus other farm income. 3/ Equals gross imputed rental value of operator dwelling, home consumption of farm products, and inventory adjustments. 4/ Equals gross cash income minus nonmoney income. 5/ Equals total expenses minus operator dwelling, depreciation, labor perquisites, and net rent to operating landlords. 6/ Equals gross farm income minus total expenses. 7/ Equals gross cash income minus cash expenses. 8/ Deflated by GNP-implicit price index with 1982 base.

Cotton farms received $200 million more in cash receipts than the year before while direct Government outlays, principally deficiency payments, rose 16 percent to $903 million. The $1-billion reduction in inventories played a large role in reducing the net farm income of cotton farms by $1.2 billion. Net cash income, however, rose 32 percent, driven by falling production expenses, large Government payments, and income from machine hire and customwork.

Livestock enterprises accounted for approximately 54 percent of all farms in 1985. This proportion has held constant since 1983. Livestock receipts fell $3.2 billion, keyed by a 7-percent drop in prices received. Government outlays in support of livestock farms fell 13 percent after increasing roughly the same amount from 1983 to 1984. This decline was led by a sharp drop in dairy diversion payments and may also reflect the fall in PIK payments livestock producers received from feed grain enterprises. Declines in prices received and Government outlays outweighed the benefits of declining production expenses as both net farm income and net cash income fell in 1985. Although offering some relief, declining feed costs could not maintain income levels for livestock enterprises.

Despite a 3.5-percent fall in livestock farm net cash income, income grew slightly among cattle, hog, sheep, and general livestock farms, which accounted for over three-fourths of all livestock operations. Gains in farm-related income and falling cash expenses offset declines in cash receipts and Government payments. Dairy and poultry farms accounted for the overall decline in net cash income among livestock enterprises. Falling prices received and a major turkey inventory drawdown in 1985 created this downward pressure on income. Prices received for dairy products fell 6 percent in part due to increased herd size and gains in milk output per cow. Cash receipts for dairy products were up slightly in 1985, but reduced receipts from other operations on dairy farms gave this enterprise type a 4-percent decline in total cash receipts.

Income received by all farms that produced the same commodity can also be expressed on a per farm basis. Average nominal net cash income for all crop farms was greater in 1985 than either 1983 or 1984 (fig. 8). Cotton producers had the highest average net cash income in 1985 (about $92,000) and in 1984 (about $66,000). Poultry farms received about $42,000 net cash income per farm in 1985 compared with just over $13,000 per farm for all livestock.

Cotton growers received the highest average net farm income in 1985, followed by vegetable and melon producers (fig. 9). The importance of direct Government payments to cotton producers is illustrated in figure 10. Payments made under provisions of the cotton program have averaged near $40,000 per cotton farm. Cash grain producers received $10,000 or less in direct Government payments per farm in each of the last 3 years.

Income by Value of Sales Class

Agricultural activities and farm income vary significantly by farm size. The most common method of measuring farm size is by the value of sales of agricultural commodities. About half of the farms in 1985 had sales of less than $10,000, although they accounted for only 13 percent of acreage (table 23). A little over 1 percent of the farms in 1985 had sales of $500,000 or more and controlled about 11 percent of the farmland.

Figure 8--Net cash income per farm, by type 1983-85

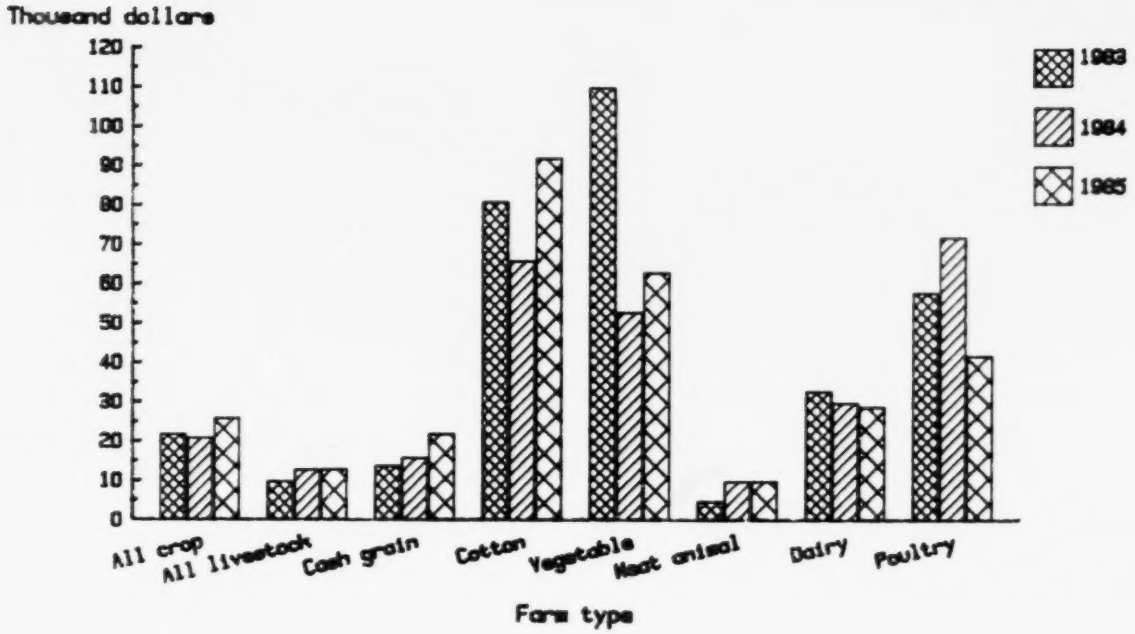


Figure 9--Net farm income per farm, by type 1983-85

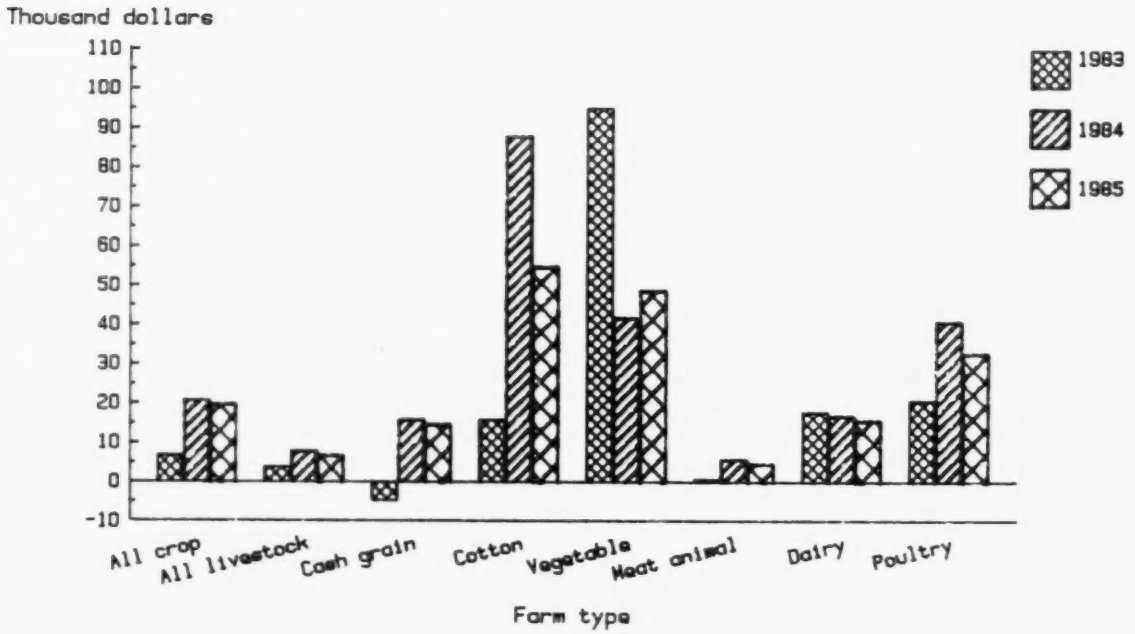
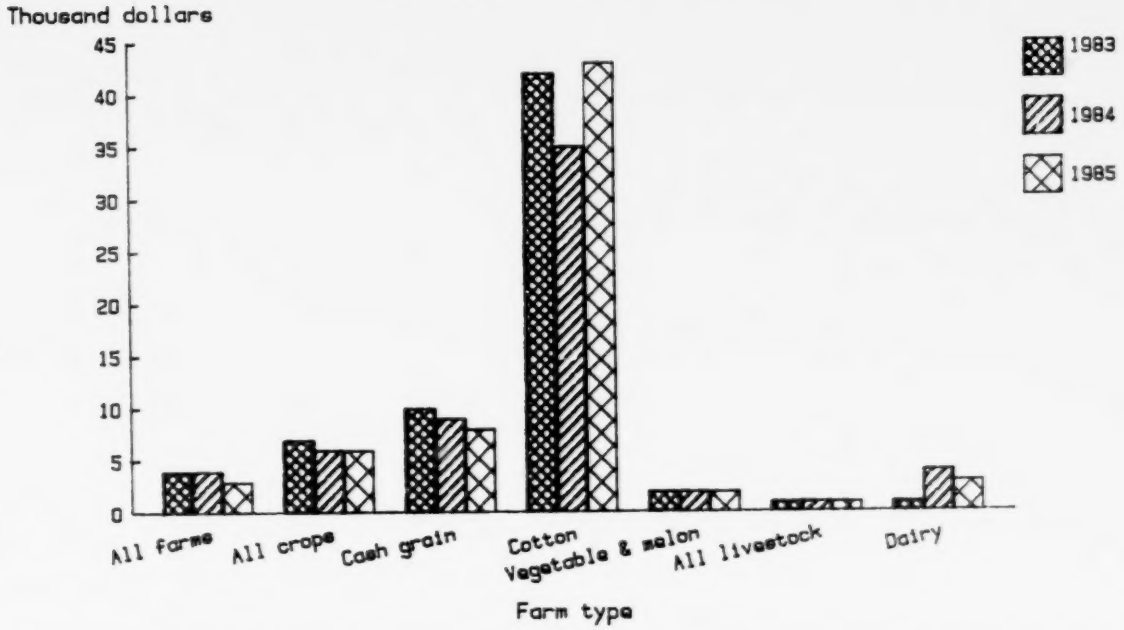


Figure 10--Direct Government payments per farm, by type of farm, 1983-85



The major component of gross farm income is cash receipts from the sale of commodities. The distribution of commodity sales by value of sales class varies significantly across commodities (table 24). Grain had the highest sales in 1985 at over $39 billion. Farms in the three largest sales classes (with total sales of $100,000 or more) sold about 65 percent of grains but made up less than 14 percent of all farms. Sales of $29 billion made cattle and calves the next most important commodity category. Over half of the cattle and calves sales were from the largest farms ($500,000 or more in total sales). Cattle and calves, at more than 30 percent, accounted for the largest proportion of sales for the largest farms. Dairy production was less concentrated on the largest farms than production of cattle and calves. However, dairy and hog production was more concentrated on farms with total sales between $100,000 and $500,000. The concentration of cattle, dairy, and hog production on farms with $100,000 or more in total sales was roughly equal, at 72-76 percent of their respective total production.

Vegetables and melons, greenhouse and nursery products, fruits and nuts, and poultry and eggs had the most highly concentrated production. Over half of their output was concentrated on the largest farms. Commodities with the least concentrated production were tobacco and hay, which, along with sheep and wool, accounted for the smallest sales levels. The majority of the tobacco production (58 percent) and 41 percent of hay and silage production was on farms with less than $100,000 in total sales.

Almost a third of gross farm income was earned by the largest farms, constituting 1.2 percent of all farms. Net farm income was even more concentrated than was gross farm income because production expenses were less concentrated. Farms in the largest sales class earned over half of net farm income and the largest 14 percent of the farms earned over 100 percent in 1985. This occurred because farms with sales of less than $40,000 continued to experience losses in farming as they had throughout the early 1980's.

Table 23---Farms, land in farms, gross farm income, production expenses, and net farm income (including households) before inventory adjustment, selected years, 1970-85

Item and year	Farm sales of-- $500,000 or more	$250,000 to $499,999 1/	$100,000 to $249,999 2/	$40,000 to $99,999	$20,000 to $39,999	$10,000 to $19,999	Less than $10,000	All farms
				Percent				
Farms:								
1970	0.1	0.5	1.2	5.6	10.3	12.3	70.0	100.0
1980	.8	2.9	6.2	14.4	11.8	12.0	51.9	100.0
1984	1.2	2.8	9.7	14.4	10.4	11.0	250.5	100.0
1985	1.2	2.9	9.7	14.2	10.1	10.7	51.2	100.0
Land in farms: 3/								
1982	11.1	11.4	23.8	22.9	10.9	7.0	12.9	100.0
Gross farm income: 4/								
1970	13.7	7.7	10.1	20.7	18.7	12.1	17.0	100.0
1980	27.1	18.9	18.3	18.0	7.0	3.9	7.0	100.0
1984	30.1	15.2	24.0	15.6	5.3	3.2	6.6	100.0
1985	30.2	15.8	24.3	15.5	5.1	3.0	6.1	100.0
Production expenses:								
1970	12.4	7.6	10.0	20.0	17.6	11.7	20.7	100.0
1980	22.8	17.9	18.2	19.4	7.8	4.8	9.2	100.0
1984	24.2	14.1	23.9	17.9	6.6	4.2	9.1	100.0
1985	24.3	14.6	24.0	17.6	6.3	4.1	9.1	100.0
Net farm income: 4/								
1970	17.6	8.3	10.3	22.8	21.9	13.3	5.8	100.0
1980	53.4	25.0	18.6	9.2	.6	-1.0	-5.8	100.0
1984	62.4	21.0	24.3	3.2	-1.4	-2.4	-7.1	100.0
1985	55.3	20.8	25.6	6.7	0	-1.5	-6.9	100.0

1/ For the years 1970-80, data are for sales class $200,000 to $499,999.
2/ For the years 1970-80, data are for sales class $100,000 to $199,999.
3/ Source: 1982 Census of Agriculture, U.S. Summary, Vol. 1, Part 51.
4/ Before inventory adjustments.

Table 24--Commodity sales (including net CCC loans), by value of sales class, 1985

Commodity	Farm sales of--							All farms
	$500,000 or more	$250,000 to $499,999	$100,000 to $249,999	$40,000 to $99,999	$20,000 to $39,999	$10,000 to $19,999	Less than $10,000	
	Million dollars							
Grains	9,133	8,134	12,555	8,667	2,668	1,308	762	39,227
Cotton and cottonseed	1,830	819	656	343	92	41	19	3,800
Tobacco	156	341	641	631	352	295	306	2,722
Vegetables and melons	4,802	788	575	320	128	89	87	6,790
Fruits, nuts, and berries	3,466	1,018	1,096	697	267	138	129	6,812
Nursery and greenhouse products	3,486	814	604	314	112	70	60	5,459
Hay and silage	631	371	485	419	211	183	234	2,534
Other crops	2,701	1,140	925	417	103	46	27	5,358
Poultry and poultry products	5,862	2,691	2,064	472	63	22	21	11,196
Dairy products	3,779	3,195	6,185	4,144	651	150	31	18,135
Cattle and calves	14,919	3,442	3,941	2,863	1,239	996	1,341	28,742
Hogs and pigs	1,692	2,103	2,817	1,528	420	217	164	8,940
Sheep, lambs, and wool	198	75	94	75	38	29	48	558
Other livestock	830	211	251	192	104	91	151	1,829
All commodities	46,149	23,998	35,683	22,125	6,871	3,569	3,706	142,103

Off-farm Income

USDA defines off-farm income as the income received by farm operators and their households from nonfarm wage and salary jobs, wages and salaries earned on other farms, nonfarm business and professional income, interest and dividends, and all other cash nonfarm income. Off-farm income is critical to the financial well-being of most farm operator households. In 1985 over 85 percent of farm operator households received income from sources other than their farms and about 70 percent of farm operator households received most of their income from off-farm sources. About 26 percent of farm operator households fell below the official poverty line in 1985 compared with 11.4 percent for all U.S. families in 1985. However, without off-farm sources of income, about 66 percent of farm operator households would have been below the poverty line, or more likely, many would have left farming.

Off-farm income, an estimated $40.8 billion for the agricultural sector in 1985, increased 8 percent from 1984 while net farm income decreased 7 percent. The trend of an increasing proportion of total household income from off-farm sources began in 1960. The average off-farm income for different sizes of farms (with size measured by the value of farm sales) placed within the relatively narrow range of $10,551 to $22,644 in 1985 (fig. 11). However, the importance of off-farm income as a source of total operator household income varied considerably by size of farm (fig. 12).

Figure 11--Average off-farm income, by sales class, 1985

Smaller farms (those with sales less than $40,000) lost money on their farm business, making off-farm income over 100 percent of their total income. As a group, farms with sales of more than $40,000 either broke even or profited from their farm businesses. However, only farms with sales of more than $100,000 earned more from their farm operations than from off-farm sources. The largest farms (with sales over $500,000) averaged $437,501 total income per farm in 1985 of which less than 3 percent was from off-farm sources. However, the returns of some farms were shared by more than one household, especially the larger farms, which were more likely to be organized as partnerships or corporations. Therefore, average farm income was not necessarily equivalent to average operator household income.

Sources of off-farm income also differed according to the size of farm category (fig. 13). The major source of off-farm income for farms with sales under $100,000 was from nonfarm wage and salary jobs. As farm size increased, the percentage of income from wage and salary jobs generally decreased. Conversely, the major source of off-farm income of the largest farms was earnings from nonfarm businesses and professional practices. Interest and dividend income from off-farm investments accounted for about a third of the off-farm income of the largest farms.

Figure 12--Off-farm income as a percent of total income, by sales class, 1985

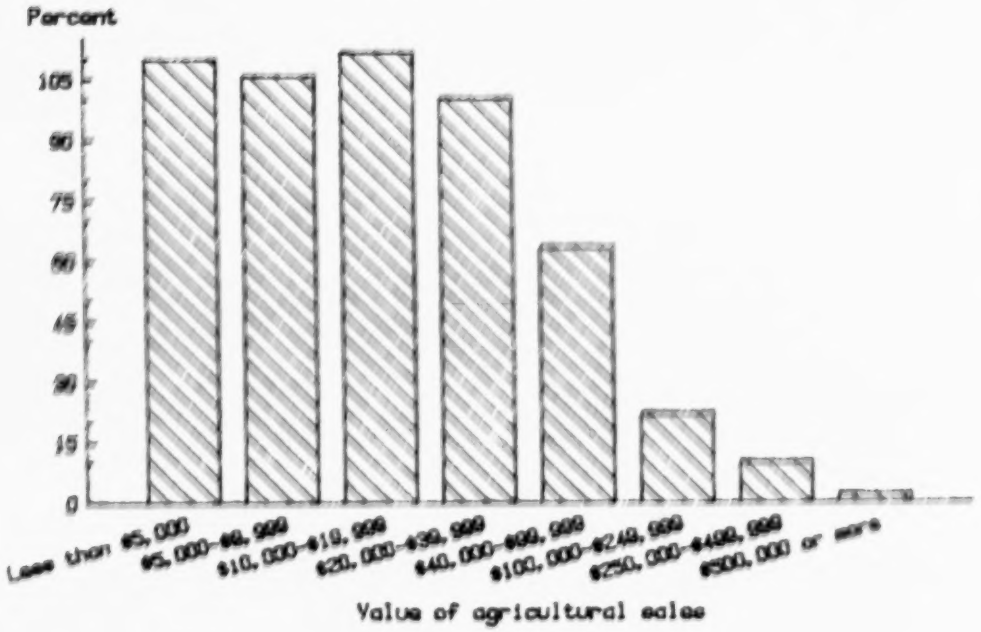
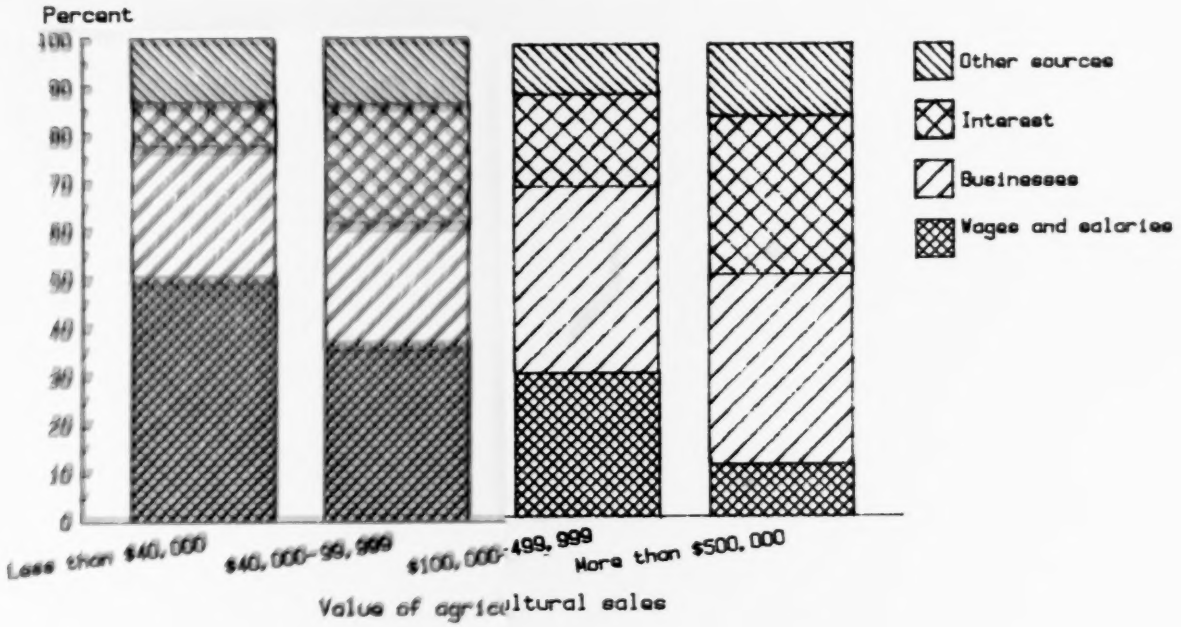


Figure 13--Sources of off-farm income, by sales class, 1985



Government Support to Agriculture

Participation in the 1985 commodity programs was considerably higher than in 1984 (table 25). Paid land diversion provided a major incentive to participate. The 1985 wheat, cotton, and rice programs included paid land diversion provisions, while only the wheat program had such a provision in 1984. Program enrollment increased 47 percent among wheat, corn, and sorghum producers and nearly 33 percent among cotton, barley, and oat producers in 1985.

Farmers who participated in the 1985 programs enrolled 166 million acres (69 percent) of the total commodity acreage base, nearly 30 percent more than the 131 million acres enrolled in 1984. Fourteen percent of the total base acreage in 1985 was enrolled in conservation use acreage compared with 13 percent in 1984. The highest percentage of base acreage idled was 32 percent for rice.

Total nonrecoverable, direct Government payments to participating producers of grains, cotton, and milk were over $7.5 billion in 1985 (table 26). This 90-percent increase in direct payments resulted from much higher enrollment and a near tripling of deficiency payments. Market prices for many crops fell below support prices, so farmers received maximum deficiency payments. Wheat deficiency payments amounted to approximately $24 per enrolled acre, $138 per enrolled acre of rice, $47 per acre for feed grains, and $84 per enrolled acre of cotton.

Recoverable Government payments accounted for over half of the $21.6 billion paid to the farm sector. Producers collected $2.3 billion more for wheat

Table 25--Participation in the wheat, feed grains, cotton, and rice programs

Commodity	Farms with bases			Base acreages			Conservation use acreage 1/	
	Total	Enrollment		Total	Enrollment		Percent of base	Percent of enrolled
	Thousands		Percent	Thousands			Percent	
1984:								
Wheat	1,033	322	31	93,876	57,040	61	22	36
Corn and sorghum	1,640	464	28	99,788	52,655	53	5	10
Barley and oats	600	61	10	21,560	6,867	32	3	10
Cotton	141	76	54	15,655	11,173	71	18	25
Rice	24	17	71	4,163	3,641	87	22	25
Total	N/A	N/A	N/A	235,042	131,376	56	13	23
1985:								
Wheat	1,033	475	46	93,885	69,443	74	22	30
Corn and sorghum	1,665	679	41	103,194	70,081	68	7	10
Barley and oats	614	78	13	22,662	9,100	40	4	10
Cotton	145	104	72	15,826	13,094	83	25	30
Rice	24	19	79	4,208	3,865	92	32	35
Total	N/A	N/A	N/A	239,775	165,583	69	14	21

N/A=not applicable, an individual farm can have more than one base.
1/ Acreage idled because of participation in commodity programs.

Source: U.S. Department of Agriculture, Agricultural Stabilization and Conservation Service.

placed under CCC loans during 1985 than they paid to redeem wheat previously under loan. Net CCC loans to corn producers totaled $5.1 billion, an increase of $6.2 billion over 1984 when redemptions exceeded new placements. Values of net CCC loans were positive for all eligible commodities during 1985 and at their highest levels in 5 years.

Income from direct Government payments varied greatly by sales class. As farm size increased, so did the average payment per farm and the total payment. About 69 percent of the direct Government payments went to the largest 14 percent of farms (table 27). The very largest farms (the 1.2 percent with sales over $500,000) averaged over $37,000 in payments in 1985. The percentage of total direct Government payments to the largest farms and the average payment per farm have both been increasing over time.

Direct Government payments were authorized under income support programs which were tied to production of specific commodities. Therefore, it is not surprising that the farms that produce most of the agricultural commodities receive most of the payments. A ratio calculated as Government payments to total cash receipts for each sales class shows the distribution of payments while controlling for production. This ratio ranged from a low of 2.3 percent for the largest farms to 8.1 percent for the farms with sales of $100,000-$249,999 in 1985 (fig. 14). The low ratio for the largest farms can in part be explained by a deficiency payment limitation of $50,000 per individual participant.

Table 26--Selected recoverable and nonrecoverable Government outlays to the farm sector, calendar years 1980-85 1/

Item	1980	1981	1982	1983	1984	1985
			Million dollars			
Nonrecoverable payments:						
Direct Government payments--:						
Deficiency payments:						
Wheat	0.4	393.2	633.0	617.7	1,202.4	1,398.6
Rice	.1	*	155.8	259.9	170.8	504.2
Feed grains	64.5	45.4	528.7	460.9	296.2	2,827.5
Upland cotton	0	0	683.3	588.2	249.6	944.2
Subtotal	65.0	438.6	2,000.8	1,926.7	1,919.0	5,674.5
Diversion payments:						
Wheat	0	0	0	245.3	592.4	584.2
Rice	0	0	0	17.7	21.0	75.0
Feed grains	2.6	.1	137.3	883.0	70.5	.9
Upland cotton	.1	*	1.7	2.0	24.4	168.7
Milk (financed through producer contributions)	0	0	0	0	539.1	423.9
Subtotal	3	.1	139	1,148	1,244	1,253
Disaster payments:						
Wheat	210.9	231.3	19.2	1.1	.3	0
Rice	1.8	1.7	.1	*	0	0
Feed grain	315.0	197.5	47.3	2.2	*	0
Cotton	171.6	222.0	115.3	72.0	.7	0
Subtotal	699.3	652.5	181.9	75.3	1.0	-.1
Reserve storage payments:						
Wheat	24.0	125.7	273.7	266.3	202.1	167.7
Corn	120.3	107.1	521.6	174.4	60.2	159.1
Sorghum grain	3.2	32.9	93.2	45.0	44.0	27.8
Barley	-.6	2.8	18.5	21.0	26.7	25.0
Oats	-.1	-.1	.8	.5	*	.4
Unallocated 2/	13.6	41.1	0	48.0	87.6	0.0
Subtotal	160.4	309.5	907.38	555.2	420.6	379.9
Other programs 3/	358.3	531.4	262.5	347.5	385.9	344.5
Total	1,286	1,932	3,492	4,053	3,971	7,613
Value of PIK commodities 4/	0	0	0	5,242.3	4,459.4	91
Recoverable payments:						
Net CCC loan values 5/, 6/--:						
Wheat	103.5	1065.5	1,976.9	1,003.5	74.2	2,300.6
Rice and rye	-2.9	-6.9	439.4	-14.2	192.5	341.8
Corn	478.3	994.9	3,758.5	-211.5	-1,087.5	5,134.8
Sorghum, barley, oats	-191.1	421.5	769.6	93.9	-19.9	910.6
Soybeans	32.2	448.5	1,060.3	-1,331.6	492.4	1,902.4
All cotton	30.8	157.7	1,075.8	-288.8	-467.5	1,224.2
Total	450.8	3,081.2	9,080.6	-748.5	-815.8	11,814.4
CCC dairy purchase costs 7/	1,519	1,830	2,089	2,107	1,560	2,035
Total 8/	3,257	6,843	14,662	10,654	9,175	21,554

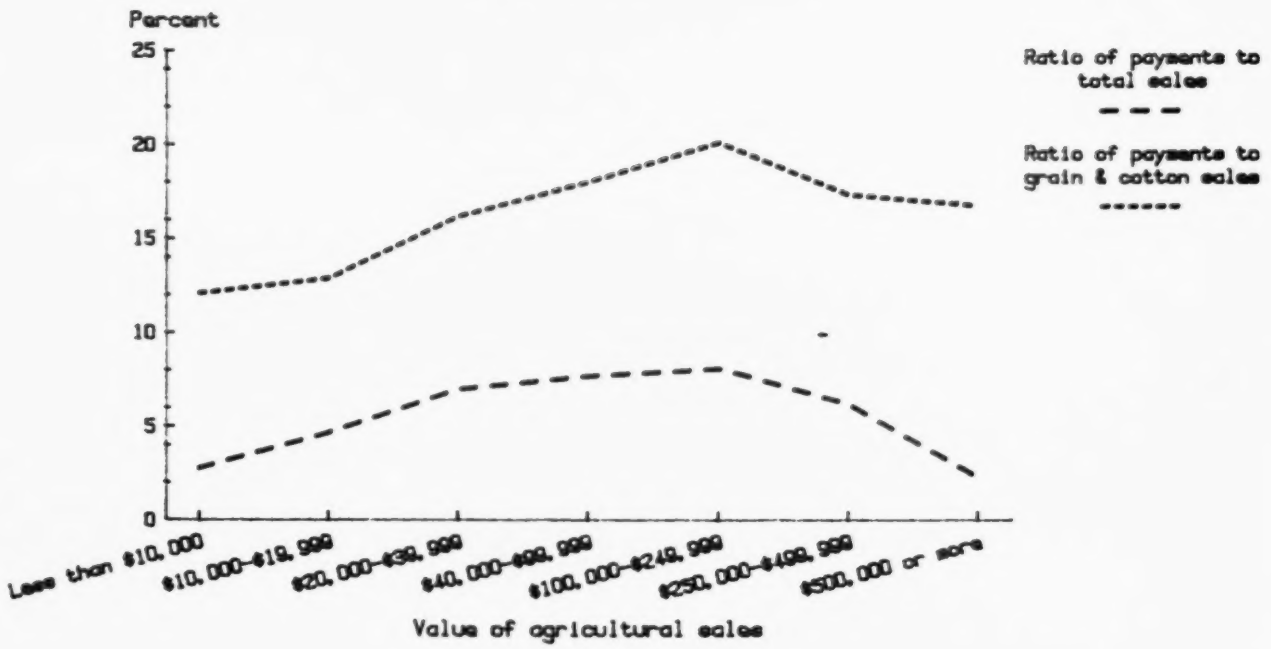
*Less than $100,000.

1/ These are approximations and are not official CCC budget outlays. 2/ Includes PIK storage costs for 1983 and 1984. 3/ Includes wool price supports, various agricultural conservation programs, and other miscellaneous programs. 4/ PIK quantities valued at original loan rates. This stock variable is considered a flow for this analysis. 5/ Includes regular and reserve nonrecourse loans. 6/ Negative amounts denote net withdrawals from CCC. 7/ Estimated calendar year data, excluding proceeds from CCC sales and transfers. 8/ Excludes any other non-CCC aid.

Table 27--Total and per-farm Government payments, by value of sales class, 1975 and 1980-85

Year	Value of sales class						
	$500,000 and over	$250,000 to $499,999	$100,000 to $249,999	$40,000 to $99,999	$20,000 to $39,999	$10,000 to $19,000	Less than $10,000
	Million dollars						
1975	57	64	105	231	140	82	130
1980	91	195	282	414	146	59	98
1981	148	387	441	599	206	84	139
1982	293	387	1,005	1,065	355	146	241
1983	1,415	1,769	3,025	1,994	584	291	207
1984	1,005	1,430	3,119	1,897	569	236	175
1985	1,024	1,437	2,834	1,677	469	165	99
	Dollars per farm						
1975	5,193	1,665	1,091	729	445	260	90
1980	3,849	2,412	1,700	1,169	521	206	79
1981	5,509	3,452	2,433	1,673	745	295	114
1982	9,829	6,160	4,341	2,986	1,330	527	205
1983	48,632	27,509	13,209	5,748	2,287	1,089	184
1984	35,559	21,877	13,837	5,650	2,341	921	149
1985	37,499	21,783	12,845	5,193	2,040	678	84

Figure 14--Ratio of direct Government payments to agricultural sales, 1985



An additional indicator of the distribution of payments is the ratio of payments to the value of sales of commodities which were authorized support under the income support programs. Such an indicator is useful because production of the supported commodities is not necessarily evenly or proportionally distributed by sales classes. This ratio, payments to sales of supported commodities, varied within a relatively narrow range from a low of 12.1 percent for the smallest farms to a high of 20.1 percent for farms with sales of $100,000-$249,999. Besides the payment limitation, the variation in this ratio can be explained by the variation in the production of supported commodities by sales class and the differences in the returns from participation in the commodity programs.

Ten States that have received the highest levels of Government support to agriculture are listed in table 28. Texas received the largest amount of direct payments in 1985. Iowa had the most net CCC loans (value of loans received minus loans repaid). Farmers in these 10 States received 70 percent of all direct Government payments in 1982 and 67 percent in 1985.

The cotton program provided the largest proportion of support received by Texas during 1982-85 and by California in 1984 and 1983. Most payments to California farmers came under the rice program in 1982 and 1985. Feed grain programs were the most important sources of income in Iowa, Nebraska, Illinois, and Minnesota during 1982-85, except 1982 when storage payments were dominant in Iowa, Nebraska, and Minnesota. Wheat received the most Government support in North Dakota, Kansas, and Oklahoma over all 4 years.

Debt, Interest, and Investment

This section considers the balance sheet, interest expenses, and capital flows in the farm sector during 1985. Debt and asset positions and interest expenses are two of the most important indicators of the longrun financial health of the sector.

The Farm Sector Balance Sheet

The farm sector balance sheet estimates the current market value of total assets, debt (liabilities), and net worth (assets minus liabilities) as of December 31 of a calendar year. The farm sector may be viewed either as a business (excluding assets and liabilities of farm households) or as a firm/household (including both farming and personal activities of farm households).

Total farm business and household assets dropped 9 percent during 1985 to $867 billion after a 10-percent drop in 1984 (table 29). Substantial declines in asset values indicated a weakening of the sector's financial position.

Trends in total asset values are determined largely by changes in the value of farm real estate, which accounted for about 76.4 percent of the total value of farm assets in 1981 but only 70.1 percent by the end of 1985. The value of farm real estate peaked in 1981 at $847 billion but has fallen at a compounded rate of almost 8 percent annually to $608 billion as of December 31, 1985. Nominal farmland values fell an unprecedented 13 percent in 1984 and 12.4 percent in 1985. Nonreal estate values have declined continuously since 1980; they fell 7.5 percent in 1985.

Table 28--Direct Government payments and net Commodity Credit Corporation loans, 10 major States, 1982-85

State/item	1982	1983	1984	1985
		Million dollars		
Texas:				
Direct payments	643.6	1,129.9	782.4	848.1
Net CCC loans	944.0	.8	-237.8	857.5
Total	1,587.6	1,130.7	544.6	1,705.6
Iowa:				
Direct payments	215.9	925.9	742.8	691.1
Net CCC loans	1,134.6	-142.0	-116.5	1,610.7
Total	1,350.4	783.9	626.2	2,301.8
Nebraska:				
Direct payments	277.5	786.8	533.0	518.4
Net CCC loans	1,033.5	16.8	-192.2	923.3
Total	1,311.0	803.6	340.7	1,441.7
Illinois:				
Direct payments	118.2	560.4	543.2	491.5
Net CCC loans	665.2	-200.3	-92.1	1,578.4
Total	783.3	360.1	451.1	2,069.9
North Dakota:				
Direct payments	200.2	558.4	463.2	483.7
Net CCC loans	507.6	140.4	12.4	517.4
Total	707.8	698.9	475.7	1,001.1
Kansas:				
Direct payments	280.3	606.9	573.9	482.2
Net CCC loans	635.5	202.8	-95.4	798.7
Total	915.8	809.7	478.5	1,280.9
Minnesota:				
Direct payments	182.9	611.7	529.9	480.1
Net CCC loans	750.7	-196.8	28.9	1,025.8
Total	933.5	415.0	548.9	1,505.9
California:				
Direct payments	134.5	352.6	335.3	301.5
Net CCC loans	310.2	-144.7	46.6	188.5
Total	444.7	207.9	381.8	490.0
Oklahoma:				
Direct payments	127.7	351.7	309.4	249.5
Net CCC loans	262.1	114.8	56.6	312.4
Total	389.8	466.5	252.8	561.9
Arkansas:				
Direct payments	119.3	290.9	209.6	328.7
Net CCC loans	312.3	-63.7	7.6	404.5
Total	431.7	227.2	217.2	733.2

Table 29--Balance sheet of the farming sector (including farm households), Dec. 31, 1980-85

Item	1980	1981	1982	1983	1984	1985	Percentage change, 1984-85
				Billion dollars			Percent
Physical assets:							
Real estate	846.6	846.7	808.7	798.0	693.7	607.5	-12.4
Nonreal estate--							
Livestock and poultry	60.6	53.5	53.0	49.7	49.6	45.9	-7.5
Machinery and motor vehicles	102.5	108.8	108.8	105.8	99.4	97.6	-1.8
Crops stored on and off farms	36.5	36.1	40.6	33.3	33.8	37.1	9.8
Household equipment and furnishings	19.4	20.8	23.0	24.4	26.1	26.1	0
Financial assets:							
Deposits and currency	16.2	16.7	17.4	18.2	19.8	21.1	6.6
U.S. savings bonds	3.8	3.6	3.5	3.6	3.7	3.9	5.4
Investments in cooperatives	22.8	24.8	27.2	28.8	29.7	27.7	-6.7
Total assets	1,108.4	1,111.1	1,082.0	1,061.4	955.8	866.8	-9.3
Liabilities:							
Real estate debt	95.6	105.8	110.0	112.6	111.6	105.4	-5.6
Nonreal estate debt--							
Excluding CCC loans	81.6	88.2	91.8	92.8	92.1	82.6	-10.2
CCC loans	5.0	8.0	15.4	10.8	8.6	16.9	96.5
Total liabilities	182.1	202.0	217.2	216.2	212.3	204.9	-3.5
Proprietors' equity	926.2	909.1	864.9	845.1	743.5	661.9	-11.0
Total claims	1,108.4	1,111.1	1,082.0	1,061.7	955.8	866.8	-9.3
				Percent			
Debt-to-asset ratio	16.5	18.2	20.1	20.4	22.2	23.6	6.3

Since peaking in 1982 the value of farm sector debt has declined 6 percent. When CCC loans are excluded, total debt outstanding decreased 7.7 percent from 1984 to 1985 because CCC debt nearly doubled in 1985. As market prices in 1985 approached loan rates, farmers put more of their crops into the nonrecourse loan program rather than sell them at market prices.

Proprietors' equity, the difference between total farm assets and liabilities, approximates what the residual value of assets would be if all creditors were repaid. While total liabilities declined almost 4 percent in 1985, the value of farm sector assets dropped over 9 percent, resulting in an 11-percent decrease in equity.

Growth in farm sector equity during the 1970's (12-percent compound annual rate) provided the collateral base for much higher levels of debt use. After peaking in 1980 at $926 billion, farm equity has declined each year to $656.2 billion (nominal dollars) in 1985, a 6-percent average annual rate of decline. Cumulative equity losses from 1981 through 1985 exceeded $250 billion, which was more than 25 percent of the 1980 value of equity.

The debt-to-asset ratio (total farm liabilities divided by assets) measures the relative indebtedness of the farm business and is an indicator of longrun farm financial strength. A low ratio implies a stronger financial position because a smaller proportion of assets are owed to creditors. After ranging from about 15 percent to 16 percent during the 1970's, the debt-to-asset ratio increased during 1980-85 from 17 percent to nearly 24 percent, indicating a deterioration of financial strength.

Interest on Debt

Interest expenses on debt are a closely watched financial indicator. The inability to meet interest obligations may indicate potential debt repayment problems in the sector. Nearly $19 billion of interest was paid in 1985, accounting for about 14 percent of total production expenses. Interest, depreciation (16 percent), and feed (14 percent) are major components of total production expenses.

Farmers paid $2.3 billion (11 percent) less in interest expenses in 1985 than in 1984 (table 30). This reflected lower interest rates on outstanding debt and a reduction of debt outstanding due in part to debt paydowns. The prime rate more than doubled between 1979 and 1981 but declined two percentage points between 1984 and 1985.

From 1984 to 1985, interest paid on farm debt secured by real estate decreased less than interest paid on nonreal estate debt. Although nominal interest rates have generally declined since 1984, the refinancing of existing real estate debt was probably at higher interest rates than the historical average. This effect put an upward pressure on average interest expenses on real estate-secured debt. Refinancing long-term debt decreased the benefits of lower interest rates. For example, the average interest rate on nonreal estate-secured debt dropped from 11.2 percent in 1981 to 8.8 percent in 1985. However, the average interest rate on real estate-secured debt increased during that period from 8.7 to 9.2 percent.

The declines in farm debt and farm interest expense in 1984-85 indicate market adjustment in the sector. Annual declines of about $4 billion in debt, when compared with annual growth of $19 billion during 1978-82, illustrate how difficult it is to alleviate debt burden.

Table 30--Farm interest expenses and selected interest rates, 1980-85 1/

Item	1980	1981	1982	1983	1984	1985
			Percent			
Average on new farm loans:						
Real estate loans--						
Federal land banks	10.4	11.3	12.3	11.6	11.8	12.3
Life insurance companies	13.2	15.4	15.5	12.5	13.5	12.3
Farmers Home Administration	11.0	13.0	12.9	10.8	10.8	9.3
Nonreal estate loans--						
Rural banks, farm production loans	14.8	17.9	17.1	14.3	14.4	11.1
Production Credit Associations	12.7	14.5	14.6	12.0	13.4	12.4
Farmers Home Administration	11.0	14.0	13.7	10.3	10.3	8.6
Average on outstanding farm debt: 2/						
Real estate 3/	7.9	8.7	9.5	9.6	9.6	9.2
Nonreal estate	10.1	11.2	10.6	10.3	10.4	8.8
Total	8.9	9.8	10.1	9.9	10.0	9.0
Prime rate, large banks	15.1	19.6	15.6	10.9	12.1	10.0
			Billion dollars			
Interest expenses:						
Real estate	7.5	9.1	10.5	10.8	10.7	9.9
Nonreal estate	8.7	10.7	11.3	10.6	10.4	8.8
Total	16.3	19.9	21.8	21.4	21.1	18.7

1/ Includes farm household debt and CCC debt. 2/ Average on outstanding farm debt was estimated as interest expense divided by debt outstanding. 3/ Each component was weighted by the loan volume held by each lender.

Debt Distribution Among Lenders

The distribution of real estate and nonreal estate debt by lender is shown in tables 31 and 32. The real estate/nonreal estate distinction typically refers to the loan collateral rather than the purpose of the loan. Major lenders to the farm operators were commercial banks, the Federal land banks, individuals and others, and the Farmers' Home Administration (FmHA). The CCC provides farmers with short-term loans for which farmers provide their crops as collateral. Since the loans are nonrecourse, the farmer is not obliged to repay the full value of the loan. Thus, CCC loan activity is largely affected by the relationship between established loan rates and current or expected market prices.

Excluding CCC loans, the FmHA held a greater share of farm debt at the end of 1985 than at the end of 1984. Under the Farm Credit System, which includes the Federal land banks (FLB) and PCA's, debt has fallen by over $8 billion. FLB debt decreased $4.5 billion and PCAs' decreased $3.9 billion. Nonreal estate debt held by commercial banks decreased $4 billion; however, real estate debt held by commercial banks increased by over $1 billion. These banks may have been reducing their operating loan portfolio and requiring real estate as security for new and/or existing loans. Debt owed to individuals

Table 31--Distribution of farm debt (including operator households) by selected lenders, December 31, 1984-85

Lender	Type of debt				Total 1/	
	Real estate		Nonreal estate			
	1984	1985	1984	1985	1984	1985
	Billion dollars					
Commercial banks	10.2	11.4	39.6	35.5	49.8	46.9
Federal land banks	49.1	44.6	N/A	N/A	49.1	44.6
Federal Intermediate Credit Banks	N/A	N/A	.9	.5	.9	.5
Production Credit Associations	N/A	N/A	17.9	14.0	17.9	14.0
Life insurance companies	12.4	11.8	N/A	N/A	12.4	11.8
Farmers Home Administration	10.0	10.4	15.7	17.1	25.7	27.5
Commodity Credit Corporation 2/	N/A	N/A	8.7	16.9	8.7	16.9
Individuals and others	29.9	27.2	18.0	15.4	47.9	42.6
Total	111.6	105.4	100.7	99.5	212.3	204.9

N/A=not applicable. 1/ Totals may not add due to rounding. 2/ Includes loans on crops and loans for crop storage facilities.

Table 32--Farm real estate and nonreal estate debt (including operator households), selected years, Dec. 31, 1975-85

Lender	1975	1980	1981	1982	1983	1984	1985
	Billion dollars						
Federal land banks	16.0	36.2	43.8	47.7	48.8	49.1	44.6
Life insurance companies	6.7	12.9	13.1	12.8	12.7	12.4	11.8
All operating banks	26.5	40.1	41.2	44.5	48.3	49.8	46.9
Production Credit Associations	10.8	19.7	21.2	20.5	19.3	17.9	14.0
Federal Intermediate Credit Banks	.4	.8	.9	.9	.9	.9	.5
Farmers Home Administration	5.1	19.5	23.2	23.8	24.1	25.7	27.4
Total 1/	65.4	129.3	143.4	149.9	153.6	155.2	145.2
Individuals and others	25.8	47.9	50.6	51.5	51.3	47.9	42.6
Total	91.2	177.2	193.9	201.4	204.9	203.1	187.8
Commodity Credit Corporation 2/	.4	5.0	8.0	15.4	10.8	8.7	16.9
Total, including CCC loans	91.7	182.1	202.0	217.2	216.2	212.3	204.9

1/ Totals may not add due to rounding. 2/ Includes loans on crops and loans for crop storage facilities.

and others fell by $5.3 billion (-11.1 percent) from 1984 to 1985, after having fallen 6.6 percent from 1983 to 1984. CCC debt outstanding increased by more than $8 billion.

Capital Flows and Formation

Total 1985 farm capital expenditures for service buildings, land improvements, vehicles, and equipment were 19 percent lower in nominal terms than in 1984. During 1985, commodity prices continued to fall and, for most of the year, farmers were uncertain of final provisions for 1985 farm legislation. These factors reduced farmers' expectations and increased their uncertainty about future farm income levels. Both results would tend to depress capital expenditures.

Continuing farm sector financial distress caused many farmers to forego or postpone buying new machinery or buildings. Farmers' expenditures for equipment and buildings were high during the late 1970's and early 1980's (table 33). With proper maintenance and repairs, part of this capital stock's useful life would remain, reducing the need for replacement during difficult financial times.

Some farmers obtained machinery services without paying new machinery prices. Financial distress also caused some farmers to quit farming and their used machinery was purchased by other farmers at reduced prices. According to the Farm Costs and Returns Survey (FCRS), 79 percent of tractors purchased in 1985 were previously owned; expenditures for used tractors were 55 percent of total tractor expenditures in 1985. Only 40 percent of total tractor expenditures in 1979 were for used tractors.

Continuing surplus grain production caused an increased need for grain storage. Data underlying estimates of service building expenditure suggest that expenditures for grain storage facilities changed little from 1984 levels. With the exceptions of hog and poultry production facilities, spending on most other types of service buildings was much lower in 1985. Because buildings cannot be moved as easily as machinery, farmers are less likely to incorporate used buildings into their operations than to incorporate used machinery.

The downward trend in total capital expenditures started in 1980. Nominal capital expenditures in 1985 were 49 percent lower than the all-time high reached in 1979. In real terms (calculated with the GNP implicit deflator), the 1985 level was 64 percent lower than the 1979 level.

Net capital formation was minus $8.7 billion in 1985. Most of this disinvestment (87 percent) occurred because gross capital expenditures were insufficient to offset capital consumption. Tractors and other machinery accounted for over 60 percent of negative net capital formation. Inventory changes accounted for 13 percent of the 1985 decline in net capital formation.

Changes in inventories have been a major component of this account in other years. Since 1981, net capital formation has been negative because positive inventory changes have been insufficient to offset negative capital expenditures. In both real and nominal terms, the farm sector has been increasingly disinvesting in capital items since 1981.

Analysis of Sector Performance

Farm business debt (excluding households) increased from $50 billion to $200 billion during 1970-82. High debt levels when combined with higher interest rates caused the interest bill for the sector to increase from about $3 billion to $21 billion during the same 13-year period. This very rapid expansion in the debt burden has proven nearly unsupportable in the mid-1980's as farm income levels have not kept pace with other sectors of the economy.

Table 33--Farm sector capital flows (excluding farm households), selected years, 1975-85

Item	1975	1980	1982	1983	1984	1985
			Million dollars			
Gross capital expenditures	12,384	17,982	13,655	13,027	12,454	10,085
Land improvements and service structures	3,731	5,213	3,796	3,319	2,964	2,422
Tractors	2,460	3,683	2,877	2,753	2,529	2,113
Trucks	1,083	1,756	1,514	1,733	1,883	1,551
Automobiles	290	374	364	399	327	229
Other machinery and equipment	4,820	6,956	5,104	4,823	4,751	3,770
Inventory change	3,399	-6,300	-1,257	-10,907	6,272	-1,117
Crops	4,444	-7,639	-567	-10,440	7,969	835
Livestock	-1,045	1,339	-690	-467	-1,697	-1,952
Gross savings 1/	15,783	11,682	12,398	2,120	18,726	8,968
Capital consumption allowances 2/	10,604	17,847	19,922	19,683	19,233	17,672
Depreciation	10,450	17,550	19,570	19,300	18,825	17,250
Service structures	2,012	3,420	3,528	3,331	3,197	2,932
Tractors	2,009	3,621	4,050	3,874	3,535	2,939
Trucks	1,012	1,846	2,207	2,301	2,474	2,378
Automobiles	411	670	870	887	874	727
Other machinery and equipment	5,006	7,993	8,915	8,907	8,745	8,274
Accidental damage	154	297	352	383	408	422
Service structures	139	273	324	354	376	388
Vehicles and machinery	15	24	28	29	32	34
Net capital formation: 3/						
Nominal dollars	5,179	-6,165	-7,524	-17,563	-507	-8,704
Real dollars 4/	9,755	-8,038	-8,407	-18,905	-524	-8,704

1/ Gross capital expenditures and inventory change. 2/ Depreciation and accidental damage. 3/ Gross savings less capital consumption allowances. USDA currently does not calculate depreciation for land improvements. Without such an account, total net capital formation is overstated. 4/ GNP implicit deflator, 1985=100.

Operator Financial Stress

Interest, which became a major component of total farm expense (14 percent in 1985), is determined by both debt levels and interest rates. If net cash income is not sufficient to pay at least the interest due, those loans may be considered nonperforming. Highly leveraged farm operations unable to pay all interest due may have difficulty obtaining operating credit or refinancing existing debt.

Indebtedness and cash flow are good indicators of financial stress, which has been defined as the inability to meet fixed financial obligations. The debt-to-asset ratio (debt ratio) indicates longrun financial strength. Cash flow provides a shortrun measure of ability to meet cash expenses when they are due. We used farm-level data to jointly derive debt ratios and cash flows, providing a comprehensive measure of the financial situations faced by farmers.

We analyzed financial stress using farm operator data from the 1984 and 1985 FCRS. Only operators with values of crop production and/or livestock sales greater than $40,000 (except operators in table 34) were included in this review. Farm size categories were based on gross production: the reported dollar value of sales of livestock, livestock products, fruits, vegetables, and nursery products plus the estimated value of other crop production. The value of production equaled the reported quantity produced times average U.S. prices from the beginning of harvest through December.

Farms were also classified according to their major enterprise. For example, wheat, oats, and barley provided the greatest proportion of gross production on small grain farms. The incidence of financial distress is also shown by geographic location for 10 U.S. regions. Regions, farm types, and sizes are defined in tables 34-36.

Three measures of cash flow were estimated: (1) net cash income before interest, (2) net cash income after interest, and (3) net cash income after interest, principal, and household adjustment. Cash income included crop and livestock sales, Government payments, income from customwork, wages from other farms, equipment sales, and net CCC loans. Cash operating expenses (excluding interest and including equipment purchases) were subtracted from cash income to derive the first measure. The second measure of cash flow accounted for part of debt service because all interest paid on farm debt was subtracted. Finally, a third net measure of cash flow accounted for the repayment of debt and maintenance of farm households. Scheduled principal payments were imputed from FCRS data using estimated interest rates and average term of debt held by farms in different sales classes. The percentage of total debt imputed as principal payment generally increased with sales and was approximately 6.5 percent for commercial-sized farms.

Allowances for family living were $15,540 for all farms, which was derived by adjusting median family income of rural residents by the implicit net rental value of farm dwellings and estimated income taxes. Nonfarm income earned by household members and the value of goods produced and consumed on the farm (both reported by FCRS respondents) were added to the third measure of cash flow.

Debt Levels and Distribution. Four of five farms ended 1984 and 1985 with debt less than 40 percent of assets, indicating the underlying financial strength of the farm sector as a whole (table 34). Given the large devaluation of farmland in recent years, any operation with debt less than 40 percent of asset value was in generally good financial position. However, the proportion of farms with debt-to-asset ratios less than 0.4 decreased slightly while the proportion with debts exceeding assets increased from 3.2 percent to 3.9 percent of all sizes. Proportions of insolvent farms increased in the $40,000 to $250,000 categories. Falling asset values and/or increasing debt levels worsened the balance sheets of many operators during 1985.

Over two-thirds of the commercial-sized farms remained financially strong (table 35). However, more commercial-sized farms were insolvent at the end of 1985 than 1984. This 40-percent increase in the number of insolvent operations suggested that asset devaluation was a major problem for larger farms. The proportion of farms with debt ratios greater than 0.7 increased from just under 12 percent to over 14 percent. If lenders considered only debt ratios less than 0.7 indicative of creditworthiness, almost 14 percent of commercial farms would not have qualified for additional credit based on their 1985 balance sheets.

While operations with small grain, milk, or beef as major products declined as proportions of all commercial farms, they increased in the highly leveraged (debt ratio of at least 0.7) categories. Therefore, greater proportions of these types became highly leveraged during 1985. Corn-soybean farms were approximately 30 percent of all commercial farms in both 1984 and 1985, but almost a third more of them were highly leveraged at the end of 1985.

Table 34--Distribution of farms by size and leverage, 1984-85

Size 1/	Debt/asset less than 0.4		Debt/asset 0.4 to 0.7		Debt/asset 0.7 to 1		Debt/asset more than 1		Total 2/	
	1984	1985	1984	1985	1984	1985	1984	1985	1984	1985
					Percent					
More than $1,000,000	0.3	0.4	0.1	0.1	*	*	*	*	0.5	0.6
$500,000-$999,999	.8	.8	.2	.3	.2	.2	.1	.1	1.3	1.3
$250,000-$499,999	2.9	3.2	1.1	1.4	.4	.5	.3	.3	4.7	5.4
$100,000-$249,999	10.4	10.4	3.6	3.2	1.2	1.5	.7	1.2	15.9	16.2
$40,000-$99,999	13.1	13.7	2.7	3.0	1.1	1.0	.8	1.2	17.7	18.9
Less than $40,000	53.1	50.5	4.1	4.7	1.4	1.4	1.3	1.1	59.9	57.6
Total 2/	80.4	79.0	12.2	12.5	4.3	4.5	3.2	3.9	100.0	100.0
					Thousands					
Number of farms	1,301	1,186	192	188	68	68	51	58	1,613	1,500

*Less than 0.05 percent. 1/ Size classes were determined by the value of crop production and actual livestock, fruit, vegetable, and nursery product sales. 2/ Totals may not add due to rounding.

Table 35--Distribution of commercial-sized farms by enterprise and leverage, 1984-85 1/

Major enterprise	Debt/asset less than 0.4		Debt/asset 0.4 to 0.7		Debt/asset 0.7 to 1		Debt/asset more than 1		Total	
	1984	1985	1984	1985	1984	1985	1984	1985	1984	1985
	Percent									
Small grain 2/	7.1	5.1	1.9	1.3	0.5	0.6	0.3	0.6	9.8	7.6
Corn-soybean	19.4	18.7	6.0	6.7	2.2	2.4	1.5	2.6	29.1	30.3
Specialty crops 3/	3.2	2.9	.8	.9	.3	.2	.4	.2	4.6	4.1
Cotton-rice	1.9	1.7	.5	.6	.2	.2	.3	.3	3.0	2.8
Fruit, vegetables, nursery 4/	3.6	4.2	.7	.4	.2	.2	.3	.3	4.8	5.1
Beef	10.0	8.7	2.3	1.8	.9	.9	.4	.9	13.5	12.2
Milk and products	14.5	15.0	4.9	4.2	1.9	2.2	.8	.8	22.0	22.2
Hog	3.7	3.2	1.2	1.4	.6	.5	.5	.6	6.0	5.7
Poultry and products	2.6	3.1	.7	.7	.2	.3	.1	.1	3.6	4.2
Other 5/	2.8	4.6	.4	.8	.2	.1	.2	.3	3.4	5.8
Total 6/	68.7	67.3	19.5	18.6	7.1	7.5	4.6	6.6	100.0	100.0
	Thousands									
Number of farms	444	428	126	188	46	47	30	42	647	636

1/ Commercial farms had value of livestock, fruit, vegetable, and nursery product sales plus crop production of at least $40,000. 2/ Major enterprises of small grain farms were wheat, oats, and/or barley. 3/ Specialty crops include peanuts, tobacco, potatoes, sunflowers, and sugar beets. 4/ Sales of fruit, tree nuts, vegetables, melons, and/or nursery products were largest proportion of gross production value. 5/ Sheep and other livestock sales and/or the value of all hay produced was included. 6/ Totals may not add due to rounding.

Shifts among debt ratio categories described for types of farms correspond to locations of most farms of these types (table 36). Many small grain and beef farms were located in the Northern and Southern Plains. Dairy farms dominate in the Lake States and corn-soybean producers dominate in the Corn Belt. The proportions of farms in the Northern and Southern Plains that were highly leveraged increased from approximately 12 percent to 17 percent during 1985. Commercial farms in the Lake States remained about 16 percent of total commercial farms, while their proportion of insolvent farms almost doubled. Fifteen percent of Corn Belt farms were highly leveraged at the end of 1985 compared with 13 percent the year before.

Financial Distress. The percentage of commercial farms with negative cash flows was lower in 1985 than 1984 (tables 37-39). Cash flow after interest was negative for over 36 percent of commercial farms in 1984 and for almost 29 percent in 1985. Almost 20 percent of the operations with inadequate cash flow were highly leveraged with debt ratios greater than 0.7. Farms with debt ratios greater than 0.7 and negative cash flow after interest were considered "highly stressed." An estimated 5.7 percent of commercial farms were highly stressed in 1985. The number of highly stressed commercial-sized operations

Table 36--Distribution of commercial-sized farms by region and leverage, 1984-85 1/

Region 2/	Debt/asset less than 0.4		Debt/asset 0.4 to 0.7		Debt/asset 0.7 to 1		Debt/asset more than 1		Total 3/	
	1984	1985	1984	1985	1984	1985	1984	1985	1984	1985
					Percent					
Northeast	5.6	7.1	1.2	1.2	0.3	0.5	0.2	0.2	7.3	9.0
Lake States	10.6	8.9	3.4	4.1	1.6	1.5	.8	1.5	16.3	16.0
Corn Belt	16.7	17.0	5.6	5.6	2.2	2.2	1.3	1.9	25.9	26.6
Northern Plains	11.0	9.4	3.4	2.7	1.1	1.4	.8	1.1	16.2	14.6
Appalachia	5.8	6.3	1.2	.8	.4	.2	.1	.2	7.5	7.4
Southeast	3.4	2.9	.7	.7	.2	.3	.3	.2	4.6	4.2
Delta States	2.7	2.3	.9	.6	.4	.2	.4	.3	4.4	3.3
Southern Plains	4.5	5.0	.9	.9	.5	.6	.3	.6	6.2	7.1
Mountain States	5.0	4.0	1.4	1.3	.3	.4	.2	.3	6.8	6.0
Pacific States	3.6	4.4	.7	.9	.3	.3	.3	.3	4.9	5.8
Total 3/	68.7	67.3	19.5	18.6	7.1	7.5	4.6	6.6	100.0	100.0

1/ Commercial-sized farms had value of livestock, fruit, vegetable, and nursery product sales plus crop production of at least $40,000. 2/ Northeast includes Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, and Maryland; Lake States are Michigan, Wisconsin, and Minnesota; Corn Belt includes Ohio, Indiana, Illinois, and Missouri; Northern Plains are North Dakota, South Dakota, Nebraska, and Kansas; Appalachia includes Virginia, West Virginia, North Carolina, Kentucky, and Tennessee; Southeast is South Carolina, Georgia, Florida, and Alabama; Delta States are Mississippi, Arkansas, and Louisiana; Southern Plains are Oklahoma and Texas; Mountain States are Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, and Nevada; and Pacific States are Washington, Oregon, and California. 3/ Totals may not add due to rounding.

Table 37--Distribution of commercial-sized farms with negative cash flow before interest, 1984-85

Size 1/	Debt/asset less than 0.4		Debt/asset 0.4 to 0.7		Debt/asset 0.7 to 1		Debt/asset more than 1		Total 2/	
	1984	1985	1984	1985	1984	1985	1984	1985	1984	1985
					Percent 3/					
More than $1,000,000	0.1	0.1	*	0.1	*	*	*	0.1	0.2	0.2
$500,000-$999,999	.5	.3	.1	.1	.1	*	.1	*	.8	.4
$250,000-$499,999	1.9	.8	.5	.3	.2	.1	.2	.1	2.6	1.3
$100,000-$249,999	4.8	4.1	2.3	1.0	.7	.6	.6	.7	8.4	6.4
$40,000-$99,999	8.6	7.6	2.6	1.7	1.1	.7	.8	.9	13.1	10.9
Total 2/	15.9	13.0	5.7	3.1	2.0	1.4	1.7	1.9	25.2	19.3

1/ Commercial-sized farms had value of livestock, fruit, vegetable, and nursery product sales plus crop production of at least $40,000.

decreased from over 39,000 in 1984 to approximately 36,000 farms during 1985. Liquidity was less of a problem than solvency during 1985.

Moderate-sized family farms in the $40,000-$250,000 sales classes with negative cash flow after interest (table 38) and debt ratios greater than 1.0 increased from 2 to 2.8 percent of commercial farms between 1984 and 1985. After principal payments and household adjustments (table 39), over 25,000 family-sized farms were insolvent and illiquid in 1985 compared with about 18,000 in 1984 (up 39 percent).

Table 38--Distribution of commercial-sized farms with negative cash flow after interest, 1984-85

Size 1/	Debt/asset less than 0.4		Debt/asset 0.4 to 0.7		Debt/asset 0.7 to 1		Debt/asset more than 1		Total 2/	
	1984	1985	1984	1985	1984	1985	1984	1985	1984	1985
					Percent 3/					
More than $1,000,000	0.2	0.4	0.1	0.2	*	*	*	0.1	0.4	0.8
$500,000-$999,999	.7	.5	.2	.2	.1	.1	.1	.1	1.1	.8
$250,000-$499,999	2.2	1.1	1.0	.6	.3	.2	.3	.3	3.7	2.2
$100,000-$249,999	7.0	5.6	3.6	2.0	1.5	1.0	1.0	1.2	13.1	9.8
$40,000-$99,999	11.3	9.8	3.8	2.9	1.6	1.1	1.0	1.6	17.7	15.4
Total 2/	21.4	17.4	8.8	5.9	3.5	2.5	2.3	3.2	36.3	29.0

See footnotes end of table 39.

Table 39--Distribution of commercial-sized farms with negative cash flow after interest, principal, off-farm income, family living allowance, 1984-85

Size 1/	Debt/asset less than 0.4		Debt/asset 0.4 to 0.7		Debt/asset 0.7 to 1		Debt/asset more than 1		Total 2/	
	1984	1985	1984	1985	1984	1985	1984	1985	1984	1985
					Percent 3/					
More than $1,000,000	0.2	0.5	0.1	0.3	*	0.1	0.1	0.2	0.5	0.4
$500,000-$999,999	.7	.5	.3	.2	.2	.1	.1	.1	1.4	.9
$250,000-$499,999	2.9	1.6	1.6	1.3	.7	.6	.4	.4	5.6	3.9
$100,000-$249,999	10.5	7.7	5.9	3.9	2.0	2.1	1.2	1.8	19.6	15.9
$40,000-$99,999	17.2	13.7	5.2	4.4	2.4	1.7	1.6	2.2	26.2	22.2
Total 2/	31.4	24.0	13.1	10.0	5.4	4.6	3.4	4.7	53.3	43.3

* Value less than 0.05 percent.

1/ Size classes refer to the value of sales of livestock and products, fruits, vegetables, and nursery products plus the value of crop production. 2/ Totals shown may not add due to rounding. 3/ Percent is of all commercial-sized farms.

Corn-soybean, beef, and milk producers accounted for the largest proportions of farms with negative cash flow after interest in 1984 and 1985. These types were also the largest proportion of commercial farms in both years (see table 35). The incidence of financial stress among farms producing different commodities can be examined by determining the percentage of each type with high debt ratios and negative cash flows. Approximately 5.6 percent of all corn-soybean farms were highly stressed in 1985 (table 40).

Commodity program payments undoubtedly helped reduce the proportion of stressed corn producers from over 6 percent in 1984. About 5.4 percent of all milk producers remained financially stressed, while stressed beef farms increased from 4 percent to over 6 percent in 1985. Other types of farms with evidence of above average financial stress were hog (7.8 percent), small grain (7.2 percent), and cotton-rice farms (7 percent). While negative cash flows after interest increased on specialty crop farms, the proportion of operators with both negative cash flows and high debt burdens declined in 1985. Financial stress was lower among poultry operations than any of the other major farm types in both 1984 and 1985.

Cash flows improved from 1984 in all regions except Appalachia and the Southern Plains. Over 20 percent of farmers in the Southern Plains, who were unable to pay all interest expenses also had debts equal to at least 70 percent of assets. Thus, almost 11 percent of Southern Plains commercial farms were highly stressed in 1985, the highest incidence among regions. The Delta and Lake States had the second and third largest incidences of stress (table 41).

Table 40--Distribution of highly stressed commercial-sized farms by major enterprise, 1984-85 1/

Major enterprise	Negative cash flow after interest		Debt/asset at least 0.7		Debt/asset at least 0.7 and negative cash flow	
	1984	1985	1984	1985	1984	1985
	Percent of type					
Small grain 2/	32.8	32.9	7.8	15.4	4.6	7.2
Corn-soybean	38.8	28.8	12.7	16.2	7.1	5.6
Specialty crops 3/	33.1	39.0	13.6	9.1	8.4	4.6
Cotton-rice	41.3	31.3	18.2	18.2	9.9	7.0
Fruit, vegetables, nursery 4/	26.3	20.2	10.1	9.6	3.6	3.7
Beef	47.3	39.1	9.2	14.4	4.1	6.4
Milk products	25.9	21.5	12.0	13.3	5.7	5.4
Hog	45.1	25.6	17.6	19.7	8.4	7.8
Poultry products	20.9	20.6	9.9	9.0	5.7	3.4
Other 5/	62.6	41.8	8.7	6.9	6.1	4.6
Percent of farms	36.3	29.0	11.7	14.1	6.1	5.6

See footnotes at the end of table 35.

Table 41--Distribution of highly stressed commercial-sized farms, by region, 1984-85 1/

Major enterprise	Negative cash flow after interest		Debt/asset at least 0.7		Debt/asset at least 0.7 and negative cash flow	
	1984	1985	1984	1985	1984	1985
	Percent of region					
Northeast	29.4	18.0	6.6	8.2	1.4	2.8
Lake States	34.8	25.2	14.4	18.8	8.4	7.1
Corn Belt	34.2	25.6	13.4	15.2	6.0	5.3
Northern Plains	35.0	28.4	11.7	17.0	5.7	5.7
Appalachia	31.5	34.4	5.9	4.6	3.6	2.5
Southeast	40.3	30.5	11.8	12.7	9.2	5.5
Delta States	40.6	38.0	16.6	14.4	8.8	8.0
Southern Plains	49.6	50.9	12.6	16.7	8.6	10.8
Mountain States	42.7	38.1	12.2	6.9	3.2	5.8
Pacific States	37.1	25.0	12.1	9.3	7.0	4.0

See footnotes at the end of table 36.

More than 50 percent of farms in the Southern Plains had negative cash flow after interest in 1985 (table 42). In all regions except Appalachia, fewer farms had negative cash flow in 1985 than in 1984 (table 43). However, the percentages of farms which also had high debt ratios increased in all regions except Appalachia, the Southeast, Delta States, and Pacific States.

Debt levels have declined more slowly than asset values in the last several years. Declining farmland values may have forced higher leveraging without additional borrowing. Since 1981, farmland values have fallen over 50 percent in some States. During 1985, farmland values declined 21 percent in Iowa (Corn Belt), 16 percent in Wisconsin (Lake States), 15 percent in Oklahoma (Southern Plains), and 12 percent in North Dakota (Northern Plains).

We examined the effect of declining farmland values on financial stress by comparing how many operators were stressed in 1985 with how many would have been if peak land values had been maintained. We used indices of average value of land and buildings estimated from USDA surveys for each State.2/ The ratio of the highest index between 1979 and 1984 to the 1985 index was multiplied by the value of land and buildings reported in the 1985 FCRS. The index was highest during 1981 or 1982 for most States. Leverage ratios for each farm and distributions of commercial farms among leverage categories and regions were recomputed.

Comparison of the proportions of farms with debt ratios of at least 0.7 and negative cash flow after interest with 1985 farmland values (table 42) and

2/ U.S. Department of Agriculture, Economic Research Service, "Outlook and Situation Summary," April 1986.

Table 42--Distribution of commercial-sized farms with negative cash flow after interest, by region and leverage, 1985 1/

Region 2/	Operations with negative cash flow	Percentage of all farms in region	Percentage of farms with negative cash flow			
			Debt/asset less than 0.4	Debt/asset 0.4 to 0.7	Debt/asset 0.7 to 1	Debt/asset more than 1
	Number		Percent			
Northeast	9,975	17.4	70.91	12.81	6.97	9.30
Lake States	25,408	25.0	45.75	26.60	10.34	17.31
Corn Belt	42,764	25.2	56.51	22.52	8.70	12.27
Northern Plains	26,427	28.4	51.11	28.85	9.88	10.16
Appalachia	16,099	34.4	82.15	10.57	3.90	3.37
Southeast	8,056	30.4	62.86	19.17	10.69	7.28
Delta States	8,034	37.8	57.45	21.42	6.61	14.16
Southern Plains	22,901	50.9	67.96	10.73	9.12	12.19
Mountain States	14,401	38.1	64.03	20.70	8.29	6.98
Pacific States	9,208	24.8	70.07	13.97	7.65	8.31
Total/average	183,275	28.8	60.30	20.20	8.60	11.00

See footnotes at the end of table 36.

Table 43--Distribution of commercial-sized farms with negative cash flow after interest, by region and leverage, 1984 1/

Region 2/	Operations with negative cash flow	Percentage of all farms in region	Percentage of farms with negative cash flow			
			Debt/asset less than 0.4	Debt/asset 0.4 to 0.7	Debt/asset 0.7 to 1	Debt/asset more than 1
	Number		Percent			
Northeast	13,908	29.4	70.6	24.8	2.2	2.4
Lakes States	36,759	34.8	43.0	28.1	14.6	9.4
Corn Belt	57,235	34.2	55.4	27.0	11.8	5.8
Northern Plains	37,785	36.0	57.9	26.4	8.6	7.1
Appalachia	15,188	31.5	65.7	22.8	10.6	.9
Southeast	11,885	40.2	61.1	16.0	8.4	14.5
Delta States	11,454	40.6	57.4	20.8	11.0	10.7
Southern Plains	19,727	49.6	67.9	14.8	10.8	6.4
Mountain States	18,918	42.7	68.2	24.2	4.0	3.5
Pacific States	11,708	37.1	62.8	18.4	11.1	7.7
Total/average	234,567	36.3	59.0	24.2	10.1	6.7

See footnotes at the end of table 36.

Table 44--Distribution of farms with negative cash flow after interest if peak land values had been maintained during 1985 1/

Region 2/	Debt/asset less than 0.4	Debt/asset 0.4 to 0.7	Debt/asset 0.7 to 1	Debt/asset more than 1
		Percent		
Northeast	72.00	12.79	6.88	8.32
Lake States	53.49	26.22	9.26	11.03
Corn Belt	68.91	14.45	11.47	5.16
Northern Plains	62.26	23.88	5.57	8.29
Appalachia	82.20	10.64	3.80	3.36
Southeast	64.66	21.85	7.63	5.85
Delta States	65.67	11.31	10.87	9.84
Southern Plains	67.97	11.31	10.87	9.84
Mountain States	65.55	20.44	7.78	6.23
Pacific States	70.22	15.13	7.34	7.32
All farms	66.50	17.48	8.31	7.71

1/ Peak land values for each State from USDA indices of land and building values between 1979 and 1984 were used to compute asset values. 2/ See footnotes at the end of table 36.

with peak land values (table 44) shows the impact of depreciating assets on financial stress. Approximately 20 percent of commercial farms with negative cash flow also had debts equal to 70 percent or more of assets in 1985. If peak land values had been maintained, only 16 percent of commercial-sized farms would have had debt ratios greater than 70 percent.

The effects of land value depreciation on debt ratios were most pronounced among the Lake States, Northern Plains, Corn Belt, and Southeast regions. In the Lake States, 5 percent of the farms rather than 7 percent would have been highly stressed with peak land values; 3.9 percent rather than 5.7 percent in the Northern Plains; in the Corn Belt, 4 percent rather than 5.3 percent; and 4 percent rather than 5.5 percent in the Southeast.

Debt at Risk of Loss

Debt at risk of loss is defined as the amount of outstanding loans highly vulnerable to being written off or unpaid in the event of foreclosure and was estimated from 1985 FCRS data. Debts of nonoperator landlords, loans written off before the end of 1985, or debts of operation with less than $40,000 gross value of production were excluded from this analysis.

The farm sector's financial performance can be analyzed from the perspective of agricultural lenders as well as farm operators. If the highly stressed operations described in the previous section cease doing business, their creditors may also suffer losses if collateral values are inadequate. Net cash income in 1985 exceeded $40 billion; however, equity declined as the fall in asset values exceeded the decline in debt. Future declines in land values will likely be smaller leading to stabilization of loan collateral value. Interest expense and debt levels declined substantially in 1985 and probably continued to do so in 1986. The financial burden may become more manageable.

The debt service ratio measures income available to pay principal and interest expenses. It equals net cash income before interest (including off-farm income) less machinery investment and family consumption costs divided by the sum of principal and interest expenses. "Full debt service" was implied by a ratio of at least one. A debt service ratio between zero and one implied "partial debt service" and "none" if the ratio was zero or less. Debt of operations with debt-to-asset ratios greater than 1.0 was considered at risk regardless of debt service ratio. Debt was also at risk if the operation had debts of at least 40 percent of assets and no debt service. Debt owed by operators with partial debt service was at risk if their debt-to-asset ratio exceeded 0.7.

Potential loan losses or debt at risk of loss was the difference between debt at risk and the value of liquidated assets. Asset values of land, buildings, and machinery were reduced 25 percent to cover potential asset deflation, unpaid interest, and any fees or charges for legal and accounting services associated with liquidation. This may have been a conservative estimate since lenders frequently recapture 50 cents or less for each dollar of debt outstanding.

Table 45 shows the number of operators, debt at risk, and potential loss levels for commercial farms in 1985. Commercial farms with debt ratios greater than 1.0 (prior to the asset value adjustment referred to above) had

Table 45--Debt at risk of loss among commercial-sized farm operators, 1985 1/

Debt service 2/ /item	Unit	Debt-to-asset ratio			
		0.4 to 0.7	0.7 to 1	More than 1	Total
Full:					
Farms	Number	N/A	N/A	11,995	11,995
Debt	Million dollars	N/A	N/A	4,246	4,246
Loss risk	do.	N/A	N/A	1,696	1,696
Partial:					
Farms	Number	N/A	18,635	16,764	35,399
Debt	Million dollars	N/A	7,767	7,392	15,161
Loss risk	do.	N/A	637	3,119	3,756
None:					
Farms	Number	27,625	11,522	15,074	54,221
Debt	Million dollars	5,839	2,619	4,724	13,182
Loss risk	do.	3/ 292	167	2,205	2,664
Total farms	Number	27,625	30,157	43,833	101,614
Total debt	Million dollars	5,839	10,386	16,362	32,589
Total loss risk	do.	292	804	7,020	8,115

N/A=not applicable because debt held by these categories of operators was not considered at risk.

1/ Commercial-sized farms had at least $40,000 gross value of production. 2/ Debt service was based on the ratio of income available for debt service to principal plus interest. A ratio of at least 1.0 implied "full" debt service; ratio less than 1.0 and greater than 0, "partial;" "none," if the ratio was 0 or negative. 3/ Debt at risk of loss was estimated as 5 percent of debt outstanding for this category.

about $7 billion of debt at risk of loss, 43 percent of the total debt held by these operators at the end of 1985. However, about $4.2 billion of this debt was held by operators able to service debt fully during 1985. The comparable debt at risk for this group was about $6.5 billion in 1984. An additional $800 million of debt was at risk among operators with debt ratios between 0.7 and 1.0. If farmland values do not stabilize in the near future, this group of operators may experience substantial debt risk. Less than $300 million of operator debt was at risk of loss among farms with debt-to-asset ratios between 0.4 and 0.7 and unable to service debt in 1985.

The farm sector continues to be threatened by large debt losses among operators. About one-fourth of the $33-billion debt held by about 102,000 commercial-sized farms may be at risk of partial loss. However, the bulk of the debt at risk of loss was held by about 43,000 operators with debts currently exceeding assets. Decreases in rates of land devaluation in 1986 suggest that additional debt loss will primarily come from profit shortfalls rather than falling land prices.

Table 46 shows estimates of lender debt exposure. Debt at risk of loss was distributed by the same percentage as the total debt held by the operator. If 50 percent of a farmer's debt was held by commercial banks, then 50 percent of

Table 46--Lender exposure to debt at risk of loss from commercial-sized farms, 1985 1/

Lender/Item	Debt service class 2/			Total
	Full	Partial	None	
	Million dollars			
Commercial banks:				
Debt	1,010	3,296	3,859	8,167
Loss risk	480	845	745	2,070
Commodity Credit Corporation:				
Debt	573	767	712	2,053
Loss risk	0	0	0	0
Farmers Home Administration:				
Debt	720	4,083	3,436	8,239
Loss risk	344	1,311	1,016	2,670
Federal land banks:				
Debt	725	3,077	2,243	6,045
Loss risk	320	612	419	1,351
Individuals:				
Debt	566	2,191	965	3,722
Loss risk	243	554	145	943
Production Credit Associations:				
Debt	388	739	908	2,035
Loss risk	201	190	160	552
Other:				
Debt	263	1,007	1,058	2,328
Loss risk	108	244	177	529
Total debt	4,246	15,161	13,183	32,589
Total loss risk	1,696	3,756	2,663	8,115

See footnotes at the end of table 45.

the debt at risk of loss was allocated to commercial banks as well. However, debt losses depend in large part on the quality of the collateral pledged to each lender.

FmHA and commercial banks had more than half of the debt at risk of loss. The proportion of debt loss to total debt was from 22 percent to 27 percent for all lenders except FmHA. The proportion of debt risk to total debt was especially high among farmers who fully serviced debt in 1985, indicating the disparity between inadequate collateral and adequate cash flow.

PRODUCTION COSTS AND RETURNS BY COMMODITY AND SIZE

During the recent period of low commodity prices, farmers have had to restructure payments, and cost control has taken on even greater importance. This section examines production costs from two perspectives. First, the traditional average costs of production and returns estimates for individual commodities are described for 1985 and 1986. The major contribution of these estimates is that they separate production costs of individual enterprises from all other farming activities and provide indicators of the returns for individual enterprises. The second perspective on the current cost structure is provided by a description of the costs and returns for three different sizes of farms that specialize in production of certain commodities. This second perspective on costs is based solely on producer survey data for 1985 and is of interest largely because of the cost comparisons across farms of different sizes that specialize in a common commodity.

Enterprise Costs and Returns

Production costs and returns at the crop or livestock commodity level determine the financial status of the individual enterprise rather than of the whole farm (which is usually a mix of several enterprises). The costs are national averages for crop and livestock production based on an average acre of land, animal unit, or hundredweight (cwt) of production. Costs-of-production (COP) estimates are indicators of year-to-year changes in production costs, and as such, are not used for assessing either a farm's total income (from multiple enterprises) or a particular farm operator's current cash situation. COP estimates are based on a set of national and regional budgets produced and updated by computerized budget-generator and aggregation programs. These budgets are, in turn, based primarily on data from producer surveys repeated every 4 or 5 years for each major commodity. Annual crop yields are determined on a planted-acre basis, and prices received by farmers are those at time of harvest. Livestock prices and yields are season averages.

USDA procedures for estimating enterprise receipts omit direct Government payments because participation in the various programs is voluntary and each program contains special provisions for compliance. For some commodities, such as peanuts, milk, sugar, and wool, the product price is supported by the Government through direct market intervention. For these enterprises, the value of production reflects the combined effects of market price and Government intervention. With the addition of enterprise receipts (more correctly, estimated gross value of production) shortrun net cash returns to the enterprise can be estimated, as can longrun returns to management and risk. Following are interpretations of commodity COP and returns:

CASH RECEIPTS--Are the estimated gross value of production of primary and secondary output. This estimate does not correspond to the cash receipts of the income accounts. Both the quantities and prices differ. In this estimate, the quantities are those which are produced during a calendar year and the prices for crops are at the time of harvest. In the income accounts, quantities are for those commodities which are sold, regardless of when they are produced, and prices are season average prices.

CASH EXPENSES--Reflect the shortrun out-of-pocket variable and fixed costs. They are equivalent to the minimum break-even crop or livestock value needed to maintain an average acre or livestock unit in production.

CAPITAL REPLACEMENT--Represents an estimate of the value of the machinery, equipment, and breeding stock used up during the year plus the additional cost required to bring these items up to the same level of quality and/or quantity that they were at the beginning of the period.

SHORTRUN RETURNS--Provide a measure of the potential cashflow position of producers as measured by receipts less cash expenses.

TOTAL ECONOMIC COSTS--Provide a full accounting of both cash and noncash costs, regardless of tenure or equity. They are equivalent to the longrun break-even crop or livestock value necessary to continue production.

RETURNS TO OWNED INPUTS--Reflect an allocation of cash needed for paying the farmer's owned inputs after all cash costs are paid and capital is replaced to the preproduction level.

RESIDUAL RETURNS TO MANAGEMENT AND RISK--Are the longrun economic indicators used to assess relative returns among enterprises.

Costs and Returns for Crops

Table 47 summarizes preliminary 1985 and forecasted 1986 production costs and returns for major U.S. crops. Estimated 1985 feed grain (corn, sorghum, and barley) production was up 16 percent from 1984. Record-high corn and sorghum crops and a near-record barley crop contributed to the bumper harvest. For 1986, production is expected to fall 7 percent.

Corn yields increased 11 percent in 1985 but prices fell 14 percent so receipts were down. Costs of many inputs fell (particularly fuel and fuel-based products) but not by enough to cover the drop in receipts, so returns fell. For 1986, preliminary forecasts indicated dramatic decreases in costs (again mainly because of fuels) and slightly higher U.S. yields. If 1986 corn sells at the average loan rate of $1.90, net cash returns could fall to $36 per acre, down from $55 in 1985. The summer's drought mainly centered on the Southeast and returns will be affected more there than in the Nation as a whole. However, lower cash expenses will prevail because of a 15- to 25-percent drop in fuel prices and sharply lower interest rates.

Grain sorghum and barley were similar to corn in costs and returns for 1985 and will probably perform about the same as corn in 1986. Sorghum cash expenses should fall to about $91, leaving net cash returns of $18. Barley returns were negative in 1985 and will remain so in 1986. The drought will not affect these two crops as much as corn because the Southeast is not a major production region.

Table 47--Costs and returns for major U.S. crops, 1985-86 1/

Item	Corn		Sorghum		Barley	
	1985	1986	1985	1986	1985	1986
	Dollars/planted acre					
Total cash receipts	260.16	225.16	120.77	109.26	87.56	81.05
Cash expenses:						
Total variable 2/	128.10	119.28	63.42	58.24	52.00	48.54
Total fixed 3/	77.01	69.47	35.78	32.80	40.80	36.90
Total cash expenses	205.11	188.75	99.20	91.04	92.80	85.45
Receipts less cash expenses	55.05	36.41	21.57	18.22	-5.24	-4.40
Capital replacement	33.70	35.65	26.20	27.72	22.78	24.10
Receipts less cash expenses and replacement	21.35	.76	-4.63	-9.50	-28.02	-28.50
Economic (full ownership) costs:						
Cash expenses (less interest)	160.55	153.57	80.25	76.02	69.59	67.11
Capital replacement	33.70	35.65	26.20	27.72	22.78	24.10
Allocated returns to owned inputs:						
Net land rent	57.46	53.26	27.61	25.38	21.38	20.59
Unpaid labor	13.77	14.37	12.20	12.74	8.75	9.14
Capital (operating and other nonland)	17.11	17.10	12.50	12.76	9.56	9.82
Total, economic costs	282.59	273.96	158.76	154.63	132.06	130.75
Residual returns to management and risk	-22.43	-48.80	-37.99	-45.36	-44.50	-49.70
Total, returns to owned inputs	65.91	35.94	14.32	5.52	-4.81	-10.16
	Dollars/bushel, cwt, or 1b					
Harvest-month price	2.22	1.90	1.89	1.75	1.86	1.65
	Bushel, cwt, or 1b					
Yield per planted acre	116.96	118.50	63.74	62.44	45.16	47.28

See footnotes at the end of this table. continued--

Table 47--Costs and returns for major U.S. crops, 1985-86--continued 1/

Item	Wheat		Rice		Cotton	
	1985	1986	1985	1986	1985	1986
	Dollars/planted acre					
Total cash receipts	100.66	73.60	431.39	390.19	359.45	n/a
Cash expenses:						
Total variable 2/	49.80	46.14	249.84	227.00	220.33	208.36
Total fixed 3/	39.72	35.75	91.00	81.21	85.80	76.30
Total cash expenses	89.52	81.89	340.84	308.20	306.12	284.66
Receipts less cash expenses	11.14	-8.29	90.55	81.99	53.33	n/a
Capital replacement	20.30	21.48	48.80	51.63	44.47	47.05
Receipts less cash expenses and replacement	-9.16	-29.77	41.75	30.36	8.86	n/a
Economic (full ownership) costs:						
Cash expenses (less interest)	66.58	63.74	286.29	265.05	254.02	243.46
Capital replacement	20.30	21.48	48.80	51.63	44.47	47.05
Allocated returns to owned inputs:						
Net land rent	23.75	18.98	73.35	68.07	57.87	48.14
Unpaid labor	9.63	10.06	23.05	24.07	22.70	23.70
Capital (operating and other nonland)	9.13	9.18	23.34	23.12	19.78	19.78
Total, economic costs	129.39	123.44	454.83	431.93	398.84	382.13
Residual returns to management and risk	-28.73	-49.84	-23.44	-41.74	-39.99	n/a
Total, returns to owned inputs	13.78	-11.62	96.30	73.51	60.96	n/a
	Dollars/bushel, cwt, or lb					
Harvest-month price	2.92	2.35	7.90	7.20	.55	4/
	Bushel, cwt, or lb					
Yield per planted acre	32.94	29.82	54.58	54.19	591.07	n/a

See footnotes at the end of this table. continued--

Table 47--Costs and returns for major U.S. crops, 1985-86--continued 1/

Item	Soybeans		Sunflower		Peanuts	
	1985	1986	1985	1986	1985	1986
	Dollars/planted acre					
Total cash receipts	162.72	154.91	115.33	80.78	639.33	581.52
Cash expenses:						
Total variable 2/	54.10	51.25	48.76	45.69	271.88	252.63
Total fixed 3/	56.30	50.56	36.42	32.66	111.01	97.37
Total cash expenses	110.40	101.81	85.19	78.35	382.89	350.00
Receipts less cash expenses	52.32	53.10	30.14	2.43	256.44	231.52
Capital replacement	23.80	25.18	19.17	20.28	48.73	51.55
Receipts less cash expenses and replacement	28.52	27.92	10.97	-17.85	207.71	179.96
Economic (full ownership) costs:						
Cash expenses (less interest)	77.17	75.60	63.32	61.00	311.58	293.68
Capital replacement	23.80	25.18	19.17	20.28	48.73	51.55
Allocated returns to owned inputs:						
Net land rent	48.80	47.76	26.71	22.71	84.97	84.51
Unpaid labor	10.07	10.51	7.33	7.65	24.79	25.88
Capital (operating and other nonland)	9.87	10.04	8.25	8.40	26.01	25.65
Total, economic costs	169.71	169.08	124.77	120.03	496.08	481.25
Residual returns to management and risk	-6.99	-14.17	-9.44	-39.25	143.25	100.26
Total, returns to owned inputs	61.75	54.13	32.84	-.50	279.02	236.28
	Dollars/bushel, cwt, or lb					
Harvest-month price	4.86	4.80	11.25	7.48	.22	.25
	Bushel, cwt, or lb					
Yield per planted acre	33.45	32.27	10.26	10.80	2,770	2,284

n/a=not available. 1/ Preliminary 1985 and forecast 1986. 2/ Includes: seed, fertilizer, lime, chemicals, custom operations, fuel and lubrication, repairs, drying, ginning, hired labor, purchased irrigation water, and management fees. 3/ Includes taxes and insurance, general overhead, and cash interest paid on all loans. 4/ Cotton price forecasts not available.

Food grain (wheat and rice) acreage and production were down in 1985. Some 64.7 million acres of wheat were harvested for grain (down 3 percent from 1984), and farmers harvested 2.5 million acres of rice (down 11 percent). Continued declines in harvested acres and yields are likely. Winter wheat has been harvested, and yields were down 2 bushels from 1985.

Wheat prices fell in 1985, averaging only $2.92 a bushel at harvest; yields also fell but only slightly. Lower yields and prices reduced receipts to $101 per planted acre. This carried over into net cash returns which fell to $11 and residual returns to managment and risk which fell to minus $29. Wheat yields do not vary much, so if the 1986 price reached the loan rate of $2.35, receipts could fall to $74 an acre, and returns will be negative.

Rice, on the other hand, had a 12-percent increase in yield in 1985 and, although the price dropped, receipts increased over 1984. Net returns nearly doubled. For 1986, however, national average farm level prices were expected to range around the $7.20 loan rate. This is 70 cents less than in 1985 and with lower yields, gross receipts should fall by about $41 per acre. Cash expenses should fall because of lower fuel and interest expenses but not by enough to cover the lower receipts. Net cash returns could drop $9, reaching $82 per planted acre.

Cotton receipts fell in 1985 for the third year in a row. Southern Plains and Southwest cotton acreages had large yield increases which pushed the U.S. average yield up by 6.6 percent. Even with slightly lower lint prices, receipts increased. Cottonseed receipts, however, fell 32 percent, causing total receipts to fall from $365 per acre in 1984 to $359 in 1985. Net returns remained fairly constant between 1984 and 1985 due to lower input costs. Cotton price estimates are not available at this time, but we can see that cash expenses are expected to fall on the order of 9.3 percent.

Costs and returns for major oilseeds are mixed. Soybean and sunflower returns in 1985 were essentially unchanged from 1984 as yields increased enough to cover falling prices. Prices should continue falling in 1986 so growers can expect lower returns, especially for sunflower where prices should drop to around $7.48. Peanut returns fell in 1985. The drought will drop 1986 yields as much as 18 percent, but Government support prices will help balance the loss, and returns will fall only slightly.

The cost and return estimates discussed here do not include the additional cash flow created by commodity program participation (except as previously mentioned). Price deficiency payments in 1985 would have added about $30.01 per acre in cash flow for corn, $12.30 for sorghum, and $35.58 for wheat, greatly improving the overall farm returns for producers of these and other eligible crops participating in the Government programs.

Costs and Returns of Livestock

With the exception of sheep and farrow-to-finish hog operations, livestock and dairy enterprise receipts fell in 1985 (table 48). Lower feed costs, in particular for grain and protein supplements, overcame the loss in receipts to give higher net cash returns to all but fed cattle. For fed cattle, cash expenses fell by an average $2.74 per cwt, while receipts fell by $5.43, leaving an additional loss of $2.69 between the 2 years.

Only hog producers should see any significant improvement in 1986 receipts. With the continued fall in grain prices, however, all livestock and dairy enterprises can expect improved returns. If capital replacement allowances are subtracted, net returns will be negative for cow-calf and fed beef producers. Longrun returns to management and risk will be negative for all livestock enterprises except farrow-to-finish hogs and dairy but will have improved from 1985.

Table 48--Costs and returns for major U.S. livestock enterprises, 1985-86

Item	Cow-calf		Fed beef		Sheep	
	1985	1986	1985	1986	1985	1986
	Dollars/cow		Dollars/cwt		Dollars/ewe	
Total cash receipts	254.39	251.23	59.52	59.60	66.16	66.00
Cash expenses:						
Total variable 2/	180.50	173.89	58.60	56.33	29.23	29.04
Total fixed 3/	86.37	77.72	5.16	4.15	13.06	11.66
Total cash expenses	266.87	251.61	63.76	60.48	42.29	40.70
Receipts less cash expenses	-12.48	-.38	-4.24	-.88	23.87	25.30
Capital replacement	63.60	65.40	1.02	1.05	7.51	7.72
Receipts less cash expenses and replacement	-76.08	-65.78	-5.26	-1.93	16.36	17.58
Economic (full ownership) costs:						
Cash expenses (less interest)	222.86	217.74	59.31	57.06	35.40	35.40
Capital replacement	63.60	65.40	1.02	1.05	7.51	7.72
Allocated returns to owned inputs:						
Land	122.23	115.63	.11	.20	10.31	9.75
Unpaid labor	78.28	76.24	.45	.44	7.49	7.30
Capital (operating and other nonland)	57.35	57.84	1.70	1.65	6.66	6.71
Total, economic costs	544.32	532.85	62.59	60.30	67.37	66.88
Residual returns to management and risk	-289.93	-281.62	-3.07	-.70	-1.21	-.88
Total, returns to owned inputs	-32.07	-31.91	-.81	1.49	23.25	22.38

See footnotes at the end of this table.

continued--

Table 48--Costs and returns for major U.S. livestock enterprises, 1985-86 --continued 1/

Item	Feeder-pig producer		Farrow-to-finish hogs		Milk	
	1985	1986	1985	1986	1985	1986
	Dollars/cwt					
Total cash receipts	73.73	82.47	44.22	49.46	13.64	13.32
Cash expenses:						
Total variable 2/	53.20	51.75	31.34	30.39	7.34	6.82
Total fixed 3/	14.74	12.58	8.88	7.57	2.40	2.02
Total cash expenses	68.24	64.33	40.22	37.97	9.74	8.84
Receipts less cash expenses	5.49	18.14	4.00	11.49	3.90	4.48
Capital replacement	11.78	12.11	5.61	5.77	1.46	1.45
Receipts less cash expenses and replacement	-6.29	6.03	-1.61	5.72	2.44	3.03
Economic (full ownership) costs:						
Cash expenses (less interest)	58.20	56.60	34.19	33.33	8.20	7.68
Capital replacement	11.78	12.11	5.61	5.77	1.46	1.45
Allocated returns to owned inputs:						
Land	.98	.93	.20	.19	.33	.30
Unpaid labor	17.18	16.73	4.52	4.40	1.57	1.47
Capital (operating and other nonland)	6.90	6.87	3.09	3.06	.98	.97
Total, economic costs	95.04	93.25	47.61	46.75	12.54	11.86
Residual returns to management and risk	-21.31	-10.78	-3.39	2.71	1.10	1.46
Total, returns to owned inputs	3.75	13.75	4.42	10.36	3.98	4.20

1/ Preliminary 1985 and forecast 1986 data. 2/ Includes feed, veterinary fees and medicine, marketing, bedding, custom feed mixing, fuels, machinery and building repairs, hired labor, and manure credit. 3/ Includes taxes and insurance, general overhead, and cash interest paid on all loans.

Production Costs by Size of Operation

The previous section presented the unit costs and returns associated with producing various commodities. Technological factors and specialization generally allow farmers to initially reduce their unit costs by increasing their scale of operation. However, as the scale increases the management load increases and eventually management efficiency may decline, outweighing the gains from technology and specialization. An analysis of whole farm data for those farms which specialize in a particular enterprise can contribute to our understanding of the unit costs associated with different-sized farms.

Survey cost data for 1985 are presented in tables 49 and 50 for six different specialized farms: corn/soybean, cotton, fruits/nuts, cattle, hogs, and dairy. A farm specializes in production if the value of production for an enterprise, including increases in inventories for crops, was over 50 percent of a farm's total value of production. Production is valued at the U.S. season average price rather than actual sale price. The smallest farms (less than $40,000 in production) are not included in this analysis. We focus on three sizes of farms based on the total value of production: $40,000-$99,999, $100,000-$499,999, and $500,000 or more. The cost structures for the three sizes of farms are evaluated by comparing their average cost ratios for production inputs, where:

cost ratio = input expense/total value of farm production

Corn-soybean Farms

The midsized farms ($100,000 to $499,999 in production), at 77 cents, had the lowest cash expenses and capital purchases per dollar of production (table 49). Smaller farms ($40,000 to $99,999 in production) earned 80 cents and the largest farms ($500,000 or more in production) earned 79 cents. The midsized farms had the lowest cost ratio for several major production expenses. Their average net cash flow was about $40,000 compared with $12,870 for the largest farms and $13,499 for the smaller farms (table 50). The largest farms had the highest cost ratio for labor, interest, and rent. The largest farms were also more involved in livestock production and so had greater livestock expenses. The smaller farms had the highest cost ratios for several basic inputs, such as fertilizer, seed, and fuel.

Cotton Farms

All three categories of cotton farms had cash expenses and capital purchases which exceeded their value of production. However, when direct Government payments were included in the value of production, the costs were less than the value of production for the two large-sized categories, reflecting the relatively high payment levels to cotton producers. Again, midsized farms had the lowest overall cost ratio, largely because none of their individual input costs were high relative to the smaller and largest farms.

Small cotton farms had the highest cost ratio of the three groups, although when Government payments were included with the value of production, their cost ratio was close to that of the largest farms. Small cotton farms received the largest Government payments as a proportion of their production because their payments were not constrained by the $50,000 payment limitation. The smaller cotton farms had the highest cost ratio for

Table 49--Average ratios of expenditures to value of production for six types of specialized farms, by value of production, 1985

Item	Value of production by sales class		
	$40,000-$99,999	$100,000-$499,999	$500,000 or more
	Cents per dollar of production		
Corn and soybeans:			
Fertilizer, chemicals, and seed	24	21	22
Interest, rent, and marketing	22	23	26
Hired labor and other expenses	33	31	32
Capital purchases	8	8	6
All expenditures	87	82	86
Expenditure-to-production plus payments 1/	80	77	79
Cotton:			
Fertilizer, chemicals, and seed	25	23	23
Interest, rent, and marketing	32	24	22
Hired labor and other expenses	64	49	55
Capital purchases	13	11	9
All expenditures	134	107	109
Expenditure-to-production plus payments 1/	102	89	99
Fruits and nuts:			
Fertilizer, chemicals, and seed	13	17	9
Interest, rent, and marketing	23	31	19
Hired labor and other expenses	55	56	49
Capital purchases	7	7	3
All expenditures	97	111	80
Expenditure-to-production plus payments 1/	97	111	79
Cattle:			
Livestock purchases and expenses	49	51	76
Interest, rent, and marketing	25	21	13
Hired labor and other expenses	43	32	19
Capital purchases	8	7	3
All expenditures	125	110	111
Expenditure-to-production plus payments 1/	121	106	109
Hogs:			
Livestock purchases and expenses	46	39	52
Interest, rent, and marketing	14	17	12
Hired labor and other expenses	33	29	22
Capital purchases	8	6	2
All expenditure ratio	101	92	88
Expenditure-to-production plus payments 1/	99	89	87
Dairy:			
Livestock purchases and expenses	31	29	44
Interest, rent, and marketing	19	18	14
Hired labor and other expenses	33	31	28
Capital purchases	9	9	4
All expenditure ratio	92	87	90
Expenditure-to-production plus payments 1/	90	85	88

1/ Cents per dollar of production and Government payments.

Source: Farm Costs and Returns Survey, 1985.

Table 50--Income and expense items for six types of specialized farms, by value of production, 1985

Item	Value of production by sales class		
	$40,000-$99,999	$100,000-$499,999	$500,000 or more
	Dollars		
Corn and soybeans:			
Total cash expenses and capital purchases	55,856	155,994	606,193
Total value of production	64,850	189,682	694,645
Value of corn and soybean production	56,671	156,950	554,770
Government payments	5,521	12,631	52,216
Net farm cash flow	13,499	38,982	212,870
Cotton:			
Total cash expenses and capital purchases	89,517	217,492	1,021,108
Total value of production	66,878	210,483	942,378
Value of cotton production	54,379	162,316	693,598
Government payments	23,226	41,608	88,739
Net farm cash flow	-5,381	44,205	95,607
Fruits and nuts:			
Total cash expenses and capital purchases	60,960	204,417	1,107,395
Total value of production	64,134	190,315	1,399,041
Value of fruit and nut sales	62,313	179,212	1,371,593
Government payments	0	265	1,938
Net farm cash flow	14,194	-9,152	344,517
Cattle:			
Total cash expenses and capital purchases	79,173	215,130	1,449,262
Total value of production	63,845	197,991	1,261,509
Value of cattle sales	53,567	163,304	1,137,786
Government payments	2,155	7,021	17,052
Net farm cash flow	-4,418	2,384	13,288
Hogs:			
Total cash expenses and capital purchases	66,826	169,509	785,710
Total value of production	66,338	187,137	880,449
Value of hog sales	51,924	138,999	763,088
Government payments	1,894	5,907	10,528
Net farm cash flow	4,285	34,166	146,698
Dairy:			
Total cash expenses and capital purchases	63,316	156,602	1,021,432
Total value of production	69,271	178,813	1,122,685
Value of milk sales	59,090	154,243	1,003,801
Government payments	1,678	4,554	20,742
Net farm cash flow	7,796	27,689	127,456

Source: Farm Costs and Returns Survey, 1985.

fertilizer, seed, fuel, interest, and the lowest cost ratio for rent. Their cost ratio for interest was 18 cents per dollar of production. The smaller farms also had the highest cost ratio for the miscellaneous expenses, largely due to the contribution from livestock expenses, and had a net cash flow of minus $5,381. The largest farms had the highest cost ratio for several inputs (chemicals, labor, irrigation, rent, and capital purchases) and the lowest cost ratio for other inputs (fertilizer, fuel, marketing, and interest).

Fruit and Nut Farms

The largest fruit and nut farms had the lowest overall cost ratio. Only their cost ratio for labor was greater than the other two size categories of farms. Labor expenses were the major expenses for fruit and nut farms. The midsized farms had the highest overall cost ratio and were the only category of fruit and nut farms where costs exceeded the value of production. They had the highest cost ratio for fertilizer, chemicals, seed, marketing, and rent. Smaller farms had the highest cost ratio for fuel, irrigation, repairs, interest, and miscellaneous expenses and the lowest cost ratio for hired labor. Fruit and nut farms had a unique net cashflow situation. The smaller and largest farms had the highest average net cash flow for their size class of the six farm types analyzed while the midsized farms had the lowest net cash flow.

Cattle Farms and Ranches

Midsized farms and ranches had the lowest overall cost ratio of $1.06 per dollar of production compared with $1.09 for the largest farms and ranches and $1.21 for the smaller farms and ranches. Although the midsized cattle farms and ranches had the lowest overall cost ratio, their average net cash flow was still only $2,384. The major expenses for cattle producers were livestock purchases and feed. Midsized farms and ranches had the lowest cost ratio for feed and other livestock expenses. The largest farms and ranches had the highest cost ratio for livestock purchases and leases of 46 cents for every dollar of production. Small farms and ranches had the lowest cost ratio for livestock purchases and leases and the highest cost ratio for many other inputs.

Hog Farms

The largest hog farms had the lowest overall cost ratio of 87 cents per dollar of production compared with the overall cost ratio for midsized farms of 89 cents per dollar of production. The smaller hog farms had the highest overall cost ratio of 99 cents per dollar of production. The cost structure was relatively similar between the midsized and largest hog farms, although the cost ratio for feed and other livestock expenses was higher for larger farms, and interest and rent ratios were lower. Smaller hog farms had the highest cost ratios for livestock purchases and leasing, repairs, and miscellaneous and crop expenses.

Dairy Farms

The midsized dairy farms had the lowest overall cost ratio of 85 cents per dollar of production. The overall cost ratios for the largest and smaller dairy farms, respectively, were 88 and 90 cents per dollar of

production. The cost structures were generally similar among the three size categories. The smaller farms had a higher cost ratio for livestock purchases and leases. The largest farms had higher cost ratios for feed, other livestock expenses, and labor but a lower cost ratio for capital purchases.

Midsized farms had the lowest overall cash cost ratio for corn-soybean, cotton, cattle, and dairy in 1985 and had very few extremely high or low individual cost ratios. Except for fruits and nuts and cattle, midsized farms had relatively good net cash flows of $27,000 or more. For hogs, the overall cost ratio and the detailed cost structure were similar among the midsized and largest farms. The largest fruit and nut farms had the lowest overall cost ratio. Small farms were most likely to have the highest individual cost ratios, especially for maintenance and repair, fuel, and capital expenditures. On the other hand, they were most likely to have the lowest cost ratio for hired labor. The largest farms were most likely to have the lowest individual cost ratios like fuel, maintenance and repair, interest, and capital expenditures. Except for cattle farms and ranches, the largest farms also had the highest cost ratio for hired labor. However, a smaller proportion of the total labor hours used on the largest farms are unpaid operator and family hours in comparison to the midsized and smaller farms. If all operators and families were to pay themselves a wage, the cost ratios for the midsized and smaller farms would rise relative to the largest farms.

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